ASL

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for Limnology Inc

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AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology Inc. (ASL) is an association of over 500 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the society has played an important role in fostering limnology in this country. The ASL promotes liaison between limnologists in academic, government and private institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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Membership Infomation and a list of the Regional Executive Officers can be found at the back of this Newsletter

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Material for publication in the December 1997 Issue of the Newsletter should be sent to the Editor (see back pages) before 31st December 1997.

Long articles should be forwarded as unformatted text on a disk or via email.

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EDITORIAL

WOW a **BUMPER** issue of the ASL Newsletter - thanks to everyone who contributed!! Again some articles in the newsletter have come from the email group, but as not all members have access to email it seems fair to publish some of the information in this format - I would welcome views on this, perhaps as Letters to the Editor.

The Albury Congress was fantastic - a huge thanks to the organising committee, Jonty and I had a great time - he slept through all the Key Note Addresses!!!. No matter how professional the organisation of a Congress though there are always areas for improvement - if you think you have hit on the 'perfect' congress recipe then email your thoughts to Gary Jones (gary.jones@dnr.qld.gov.au) who is heading the organising committee for the 1998 Congress. On the Congress note - in 1998 the New Zealand Ecology Society and the Australian Ecology Society are holding a joint congress - if you are thinking of putting your hand up to organise the 1999 or 2000 ASL Congress then perhaps think about a joint cross-Tasman event. And, before I finish about Congresses don't forget about SIL next year in Dublin - if you want to go you had better join SIL now and of course then everyone will be members for the big event in Melbourne in 2001.

The December Issue of the Newsletter will contain the 1997 Membership Directory. If you have changed address, name or any other details email the changes to Margaret Hart (m.hart@sci.monash.edu.au) NOW.

Tenth Taxonomy Workshop Registration form - see Page 76

DEADLINES FOR THE NEWSLETTER IN 1997 & 1998

The following are the deadlines for remaining issues of the ASL Newsletter Volume 35 and for Volume 36.

Volume	Deadline
Volume 35	
December 1997, *No. 4*	31st December 1997
Volume 36	
March 1998, *No. 1*	31st March 1998
June 1998, *No. 2*	30th June 1998
September 1998, *No. 3*	30th September 1998
December 1998, *No. 4*	31st December 1998

FROM THE PRESIDENT

Firstly and very importantly, a big vote of thanks to the organisers of the 36th ASL Congress in Albury. Rhonda Sinclair was the fronts-person and probably should be singled out for a special mention. Thank you Rhonda, we all appreciate the efforts made by yourself and team of willing helpers. The programming went well despite the distractions of football grand finals (the 'vfl" mob may not have realised that ARL also was in finals mode that weekend) and bush dancing (that wrecked by knee and pace-maker, thanks Margaret and Debbie for the enticements to undertake such damaging activities). The involvement of the Deputy PM and later the incoming President of FASTS were all important initiatives for ASL. And, importantly, congratulations to Ben Gunn for winning the student prize. And we must not forget the wonderful asl banner that is now available.

Next, a big thanks to Gary Jones and Stuart Bunn for their offer to host the 37th Congress somewhere in SE Qld sometime in 1998. Gary has undertaken to look at the options and get back in contact with the Executive. Our effort to plan ahead for 1999 did not produce any promises and I think this is a serious problem for us all. We have been asked by the NZ limnology society to consider a joint meeting in 1999. The outgoing executive discussed this and it will be soon addressed by the incoming executive. Any thoughts from the membership?

The discussion on the Future of ASL produced a resounding vote for change (see minutes of the AGM) with some questions of process and procedure to be addressed. Thanks to all those who delivered on their promise to assist with the draft document and to those who responded to requests for comment via the NewsGroup. The document tabled at the AGM will be rationalised to remove repetition and reproduced in the newsletter and on the newsgroup as part of this process. The original version is still available. The incoming executive will be asked to act on the mandate given by the AGM and develop some tangible products. However, it is not just a matter for the executive .....

A few reservations about the change in emphases being proposed were expressed during the AGM. The one I found most interesting revolved around the seriousness with which we elected our executive. If the mooted changes produce a far greater interest in the selection and voting process then we have achieved a lot - asl can only progress as a society if we do seriously address such basic processes. The executive has been given an important responsibility and we need to have feedback. If we fail miserably we could blame your lack of input and guidance, but you have the ultimate weapon and can change the executive. It sounds cliched, but asl belongs to its membership and this strength needs reinforcing.

Thank-you and I look forward to a year as President of ASL that will herald the changes requested so overwhelmingly by the AGM.

PRATTLEBUT, SCUMOUR AND RUTTLE

NEW SOUTH WALES

University of New England

from: Andrew Boulton

In Ecosystem Management, **Andrew** is relishing being back on two legs (instead of 3) and spent a happy weekend sampling hyporheic mites from the Never-Never River (in the Promised Land) with **Jane Growns** who was up to give some lectures. Just about every mite was new and different - argggh. **Andrew** has also been involved in developing a coastal catchment project for easterly-flowing rivers entering the Solitary Islands Marine Park, and as teaching begins to grind to a halt, looks forward to finishing a review on hyporheic processes for Annual Reviews of Ecology and Systematics as well as making a final dent in the Book with **Marg**. The end of the year sees the conclusion of some Honours projects - **Marita Woods** on longitudinal gradients in nutrients and macroinvertebrates in streams with different land-uses and **Chris Thomson** preparing a pictorial key to invertebrates of the Kalang River to allow landowners to assess water quality. **Daryl Albertson** is working with Tablelands city councils to see if **Bruce Chessman's** SIGNAL scores hold on the icy high plains while **Tracy Fulford** assesses the use of remote sensing for detecting blue-green algal blooms in Tableland reservoirs.

Wetlands Group

From: Annabel Douglas-Hill.

We omitted sending our contribution to Prattlebut last time...we missed reading up about ourselves so this time we are making sure we get this in! **Nigel Warwick** joined our team from Monash and wife **Caroline** already has the job of advertising the Armidale Art gallery - so we are waiting on our black suit invitations to the next wine tasting - so we can hang up the wellies for the night and soak in the cultural activity.

Our experimental wetlands are almost finished....despite the NSW drought they persist in filling up and **Geoff Smith** and **Chris Cooper** are kept busy playing plumbers to keep them dry enough to lay the weed matting. **Geoff's** skills as a fixer of pipes and drains is so renowned it is holding up finishing his PHD. **Geoff** has had a paper accepted for publication in the meantime - obviously this guy is a late night party animal.

Margaret Brock and **Michelle Casanova** have been busy writing papers and a chapter in the ESA Frontiers in Ecology book. **Michelle** has just finished collating a special journal issue on Charophytes which is now being edited. The pair spent an enjoyable

time on the Paroo contributing to a workshop on management reccommendations for future water management in the Paroo River (as well as getting into Lake Wyara charophyte and *Ruppia* beds). As our new Masters student with the NPWS, **John Porter** wrote, ' it was inspiring to see how enthusisatic they are at this stage of their careers - jumping into the smelly black ooze and saying "Wow, look at this... aren't they (the macrophytes) cute!". **John** has collected hundreds of samples from the Paroo for his MSc project and is waiting on masses of macrophytes to germinate.

We are in one way or another recovering from the ASL, Wetland Workshop, Griffith expedition and ESA all fitted into two weeks - not helped by the champagne **Margaret** brought to celebrate her two students **Annabel Douglas-Hill** and **Janet Smith** coming winner and runner up for best student poster paper. There will be some funny looks when the pictures from the motel room get back. **Annabel** is busy working with a group of farmers on turning farm dams into wetlands while **Janet** is looking into the restoration of further degraded wetlands on farms in Tasmania.

Leith Boully (LWRRDC board member) with **Margaret Brock** launched our booklet 'Are there seeds in your wetland? - assessing wetland vegetation' at the dinner of the Wetland Workshop in Albury. Let us know if you want a copy - pass yours onto someone else if you have one and don't want it!

Rob Sansom is busy writing up his Honours thesis on the effect of slope in wetlands and apparently managed to get half it done on the bus coming back from ASL.

Nunzio Knerr put in an entrance at ASL - with an impressive demonstration of his computer generated Kakadu slides. So now we know what he has been doing all this time! Guess how many people have since put Kakadu down as the place for our next Christmas party?!

TASMANIA

From: Jean Jackson (Jean.Jackson@utas.edu.au)

Janet Smith (Geography & Environmental Studies, University of Tasmania) has taken over from **Jean Jackson** as the executive rep (Thanks Janet!). Hopefully she has her finger on the pulse of a whole new world of gossip.

Dept of Primary Industries & Fisheries

Things are busy at DPIF with **Dave Oldmeadow, Henry Maxwell, Phil Newton** and **Tom Krasnicki** out in the field on the spring sampling round for FNARH. The Habitat based environmental flows project is ticking along with **Mark Nelson** in the thick of analysis and **Nick Probert** sorting his millionth sample. **Chris Bobbi** has just returned

from an eight week sojourn to Canada and is coming to terms being at work again. **Martin Read** is basking in the aftermath of the blue green algal bloom in Craigbourne Dam and is currently developing the environmental flows program for the north east of the state. All in all a busy time.

Inland Fisheries

Andrew Sanger has left the IFC and Tasmania for a job with NSW Fisheries based in Albury. He'll be working on inland water fishery issues. He has also recently become the father of a boy (**William**), bit of a change from all those girls. The second stage of the IFC review is underway, looking at resourcing, intergration with other departments etc. The usual projects at IFC are continuing, including the HEC water quality consultancy, threatened fish, carp and eel work. A native fish poster has been printed and will be available soon.

Zoology Dept University of Tasmania and Freshwater Systems

Jean Jackson has finished her MRHI-funded taxonomic project on Trichoptera larvae. The resulting keys will be presented at next years taxonomic workshop in Albury. Work now includes identification of bits in platypus cheek pouch samples and updating of the forestry threatened fauna manual, which includes several aquatic species. Freshwater Systems (**Peter Davies**, **Laurie Cook**, **Matt**) is continuing projects on hydro effects on river biota, monitoring for Copper Mines of Tasmania at Mt Lyell and sampling fine restaurants around the state. **Leon Barmuta** has recently returned from a trip to Mexico and Israel.

QUEENSLAND

Queensland Department of Natural Resources, Toowoomba

from: David Moffatt

With the SOI now bouncing around at the -15 mark southwest Qld is preparing for what has been ear-marked as a very dry summer. While this is not good news for land-holders, "Drought Impacts & Recovery of Wetlands..." staff are eagerly anticipating the outcome of their sampling sites dry out. The current line-up, **David Moffatt** (ex-NSW Fisheries/CRCFE), **Markus Knust** (ex-UQ) and **Marc Seifert** (ex-UCQ), are busy beavering away checking and analysing the data collected to-date. Five repeated assessments at 18 sites in the upper Murray-Darling (i.e north of Bourke) have now been completed. A substantial interim report on project progress should be available by the end of this year, and will include information on temporal and spatial patterns in habitat, macroinvertebrates (a la MRHI/FNARH) and fish over the past year.

We're also contemplating the development of a Northern Freshwater Research Centre somewhere in southern Qld in the near future. A workshop in Toowoomba has been organised for 28-29 Oct to discuss the idea. If you happen to be here for the workshop make sure you catch up with us (we'll be at the workshop of course!).

Australian Centre for Tropical Freshwater Research,
James Cook University

from: George Lukacs

Well, here's a fairly brief rap up of recent limnological issues in the north (of Queensland). The **Great Barrier Reef Marine Park Authority** (GBRMPA) is becoming increasingly concerned about the threat of agricultural expansion (sugarcane mostly) to the coastal wetlands of the region. A workshop recently held in Babinda brought together a variety of people (politicians, representatives of government departments and agencies, sugarcane growers and industry representatives, fishing and community groups, and researchers) to discuss the state of the coastal wetlands, the pressures upon them, and what is needed to secure their future as healthy ecosystems. For further information contact **Sheridan Morris** of GBRMPA on (077) 818811.

At the recent Environment Australia workshop in Albury, Senator Ian McDonald announced the formation of strategic alliance between ERISS, James Cook University, University of Western Australia, and Northern Territory University. The initial focus of the (still tentatively named) **North Australia Centre for Environmental Futures** (NACEF) will be on wetland systems and their environmental, social and economic roles in northern Australia. For further information contact either **Max Finlayson, John Dodson, Greg Hill, or myself.**

The **Jacana Foundation** is a non-profit organisation in the process of establishing an "education, research, visitation, management, training and problem solving' centre in Townsville. The focus of their activities will be a private wetland system, "Cromarty wetlands", just to the south of Townsville. This floodplain wetland is located near the Ramsar listed Bowling Green Bay National Park, at the base of Mt Elliot. The predominantly freshwater wetland mosaic is in good condition, with extensive stands of Melaleuca woodland, bulkuru (*Eleocharis dulcis*) and sedgeland that is habitat for a variety of waterfowl (e.g. magpie geese, pygmy geese, brolga, jabiru, stilts and sandpipers). For further information contact **Mark Stoneman** MLA on (077) 607300.

Within the ACTFR, I'm currently busy with a new LWRRDC project on **Best Practice Guidelines for New Irrigation Development in Australia**. At this early stage, I'm in the midst of writing an Issues Paper on biodiversity and conservation management associated with the planning of new areas. If anyone has information/comment on the area, please feel free to conatact me (077 81 4262). **Richard Pearson** is finishing off a project on Stream Classification in the Wet Tropics (together with **Faye Christidis** and

Jacqui Nolen). Faye is also kept busy with her PhD on mayflies. Constructed wetland projects are keeping our water lab busy - mostly with dye tracer (rhodamine B) studies. Does anyone know how to get that glowing red colour off carpets?!

Griffith University

Romeny Lynch is in the midst of a 3 month "bout" (similar to a bout of malaria) of field work for her PhD project on the importance of aquatic secondary production to riparian fauna. With a 1 month trip to Kakadu complete (without any crocodile fatalities and managing to save all her traps from buchfire which burnt out her last site), she is about to embark on a trip to the Chanel Country near Windorah in south-western Qld for a month and then on to the Conondale Range in south-eastern, followed by a well earned few months in the lab...then back in the field again. **Dugald McGlashan** is currently sampling in far north Queensland (Cairns, Innisfail etc). **Fiona Balcombe** isnt up to much PhD stuff at all - but taking care of her 2 week old baby boy; "thanks to everyone for all the good wishes".

Ngaire Phillips from Natural Resource Assessments P.L. has completed her stint looking at Cape Flattery bugs and work at Gunpowder Creek in north western Queenlsand. She hopes to continue monitoring following completion of research into pollution indicators for naturally mineralised areas. **Ngaire** is also currently involved in a project to determine envirnomental flow allocations for the Burrum River, north of Brisbane, using habitat and macroinvertebrate assessments - a canoe trip down the Burrum is first up - tough eh!

VICTORIA

Natural Resources and Environment, Flora and Fauna Branch

from: Tim Doeg

Here in NRE (same name for many months now!), the restructure continues. After splitting research and policy early last year, we have now split the policy section into purchasers and providers (the purchasers moved out to a new corporate headquarters). Research was subsequently split into wildlife and flora (who stayed with the Branch) and the Freshwater side, who were transferred to the Marine and Freshwater Resources Institute. No, I don't understand either.

But there are still a few things going on that might be of interest. A major project under the Regional Forest Agreement process has begun at the Marine and Freshwater Resources Institute, consisting of four components. Many of the gaps in our fish distributional knowledge are being filled, with a statewide survey lead by **Tarmo Raadik** and **Justin O'Connor**, concentrating on forest areas and endangered species. They are also conducting research into the spawning requirements of a number of

endangered fish species that lay, or are thought to lay eggs on the stream bed, so would be subject to siltation effects.

On the bug front, **Phil Papas** (recently poached from WA - sorry **Jenny**) is heading up a team (with **Julia Hillman** and **Jason Lieschke**) looking at devising an AUSRIVAS style model for forested catchments. This will tie in with the buzz phrases "performance monitoring" and "sustainability indicators" under the RFA agreements. The bug team is also looking at the success of buffer strips in protecting stream environments in a repeat of the famous (or is that infamous) **Davies** and **Nelson** work in Tasmania.

Recent Gold Banksia Award winner, **John Koehn** and his team of fishos (congratulations to **Des Harrington** and **John McKenzie** on 25 years service in the Department) are continuing their work on radiotracking, this time looking at Golden perch, Silver perch and Carp, swimming speed trials and fishway work (**Tim O'Brien** and **Steve Saddlier**), salinity planning (**Ben Kefford** and **Pam Clunie**), and a myriad of other management focussed projects too numerous to mention (not without bumping up the ASL postage bill for this issue).

Here in Head Office, **Alistair Brown**, **Bill O'Connor**, **Barry Tunbridge** and **Tim Doeg** (who all used to be the Freshwater Ecology Section, but are now spread among two new sections ..... ah, don't worry about it) continue on as usual with our role to Advise, Work, Review and Steer anything with the phrases ... Advisory Group ... Working Group ... Review Team, or ... Steering Committee .. attached to it. What fun we have!

Marine and Freshwater Research Institute, Heidelberg

from Steve Saddlier and Phil Papas

The fisho's here at MAFRI have been busy over the last 6 months with a wide variety of projects ranging from advice on river restoration to watching fish swim!

Pam Clunie together with **John Koehn** has recently commenced management plans for Silver Perch and Freshwater Catfish, under the Murray Darling Basin Natural Resources Management Strategy (a project involving Queensland, Victoria, New South Wales and South Australian representatives). Declines of these species throughout the Murray Darling Basin have recently been recognised and are cause for concern. Aims of the project include to establish a recovery team (including representatives from all relevant states), collate existing knowledge, identify gaps in information, assess current threats and reasons for declines, and undertake relevant research. The project will run for three years.

A draft report on River Restoration Through Integrated Management has been completed by **John Koehn**, **Simon Nicol** and **Alicia Lucas**. Information was provided

for this report during a workshop which was held at Heidelberg (Melbourne) during March 1997. This workshop assessed the current knowledge base and identified possible mechanisms which would enable priorities to be assigned to river restoration works within an integrated framework.

A reasonably new project, managed by **Tarmo Raadik** and **Justin O'Connor**, looking at the adequacy of biodiversity information as part of the Regional Forest Assessment (RFA) process is now up and running. A number of staff based at Heidelberg, including **John Mahoney** and **Damien O'Mahoney** will be gathering information on macroinvertebrate, fish and decapod crustacea in the North-east, Gippsland and West RFA areas of Victoria, with the North-east due to be completed by Christmas. This information will fill some significant gaps in our knowledge of species distribution. Also included in this project will be studies looking at the spawning requirements of seven native threatened fish species and an investigation of the relationship between streamside buffer and filter strips and in-stream habitat and macroinvertebrates.

In mid 1997, **Steve Saddlier**, **Des Harrington**, **Jason Lieschke**, **John Mahoney** and **Damien O'Mahoney** conducted a fish population survey at Seven Creeks, the last remaining site in Victoria to support a viable population of the nationally threatened Trout Cod *Macculochella macquariensis*. This project (funded by the Flora & Fauna Branch of NRE) was flagged as a vital component in a larger assessment of the status of this species by the Trout Cod Recovery Team. A detailed habitat assessment was also conducted to determine the habitat and flow preferences of different size classes of this species and results from this assessment are currently being analysed by Simon Nicol.

Steve Saddlier & **Justin O'Connor** have been looking at the burst swimming speeds of native fish in Otway Streams (south-west of Melbourne). This study was initiated to design and test an apparatus which will assess the burst swimming capabilities of different size classes of native fish. This information will be used by NRE for the provision of advice to river managers and engineers on the maximum velocities which our native fish can withstand in smooth surface structures such as channelled sections of streams, road crossings and culverts.

Earlier in the year, **Tim O'Brien** and **Steve Saddlier** spent a couple of weeks running around the state doing site inspections of barriers to fish migration for the State Fishway Program. Since then **Tim** has been organising some culvert removals on Otway streams along with the design and installation of a number of fishways including those at sites on the Barwon, Merri, Thomson and Maribyrnong Rivers.

An assessment of the amount of habitat available to native fish in the form of snags is also being conducted in the Murray River between Yarrawonga and Cobram. This project involves the quantification of woody debris through analysis of high resolution aerial photographs. Assuming that **Pete Fairbrother** can cope with the laboriously

long hours spent over binocular glasses without reaching for the knife and shower curtain, results will be forthcoming shortly.

The Murray River Radiotracking project is still continuing, utilising the experience of **John McKenzie**, **Des Harrington**, **John Mahoney** and **Pete Fairbrother**. This team is capitalising on the extensive experience they have gained (through work on the Murray Cod radiotracking project) to study the movements of silver perch, golden perch and carp within the Murray River for the Murray Darling Basin Commission.

Brenton Zampatti has been settling into the Freshwater Ecology Division and has recently completed an assessment of the environmental flow requirements of Hoddles Creek, a tributary of the Yarra River, using fish habitat availability techniques. The recommended flows will be used by Melbourne Water in a streamflow management plan for the creek. **Brenton** is also assisting the waterway Management Group (NRE) in the development of a rapid assessment technique for determining environmental flows in Victoria.

Macroinvertebrate related work has kept the bugo's (doesn't quite sound as good as fisho's) busy over the past six months. A combination of Federally funded and consultancy based projects are in full swing and field sampling is re-commencing for most of them. The laboratory has been bugerised with macroinvertebrate related equipment and the staff have had some fun road-testing light sources and microscopes.

Tim O'Brien and **Ben Kefford** are involved in projects pertaining to the saline water disposal in the Barwon River (near Colac), the Yarra (effects of a STP) and along with **Jason Lieschke**, macroinvertebrate sampling of wetlands for the Victorian Salinity Strategy. Two projects are also examining the effect of a freeway extension on the macroinvertebrate fauna of urban streams in Melbourne, while the Kiewa River is the subject of a study into the impact of a dam de-silting operation that is using macroinvertebrates and fish as biological indicators.

Tarmo Raadik, **Phil Papas** and **Julia Hillman** are involved in two state-wide projects. One examines the effectiveness of logging coupe buffer strips in protecting the stream ecosystem and the other (in conjunction with the Vic. EPA) is using macroinvertebrates and a host of other parameters to develop a RIVPACS model for streams in Victorian forested regions. The weather has been very dry and warm, good for staying dry but not so good for water levels which are low in most areas. Phil remains incredulous to the terrestrial leeches!

Monash University

Paul Bailey's lab

Paul Bailey and **Kim James** are currently writing a review for LWRDC on the research conducted in aquatic ssytems into salinity effects on biota. **Kim** is also lecturing in Environmental policy and wetland conservation and management at Rusden, whilst **Margie Beilharz** is on maternity leave. Honours student **Claire Sellens** is finishing her study on the distribution and breakdown of organic material within the stream bed at Hughes Creek, whilst **Deborah Nias** hopes to hand in her PhD thesis on Carbon sources and community structure in an ephemeral floodplain wetland by the end of the year (maybe!).

Ian Campbell's lab

Ian Campbell has temporarily left the confines of Monash Clayton and headed to the warmer climes of Thailand for an 18 month secondment. He is working on developing science curriculm and exchange programs between Thailand and Australia. After stinking the labs out with rotting fish guts, **Michael Shirley** is now working hard on getting his thesis written up. **Kyla Finlay** has conferenced herself out at the Phylogentics workshop, and the ASL and Ent. Soc. Conferences. She has now rediscovered her microscope, but not for long! - the field work season starts soon and she'll be off around Victoria collecting mayflies. **Natalie Lloyd's** working life consists of sitting at the microscope and listening to the radio. She is not yet ready to run any data analysis but she knows the words to all Triple J's favourites. **Edward Tsyrlin** has begun the spring field season and is attempting to collect all remaining undescribed stonefly larvae. He is also investigating stonefly mating behaviour, on video, and is trying to determine if they exhibit so called "drumming" similar to Northern Hemisphere species. **Simon Treadwell** has suddenly realised he is a third of the way through his PhD scholarship and needs to get some data. He'll be measuring primary production and community respiration of biofilm growing on snags in the Ovens River this summer.

CRCFE Water Studies Centre

Honours students **Michelle Hindle, Janine Wehrenbrecht-Hoetker** and **Glenn Staiger** have just completed their seminars, have almost completed their theses and are eagerly awaiting their oral exams.! **Jenny Driessen** has just returned from a two month visit to an environmental microbiology laboratory at Amsterdam University. The aim of her visit was to learn the mystical ways of molecular microbiology. **Jenny** reports she had a successful visit, which was only marred by being robbed TWICE and the drug dog at Melbourne airport being a little too interested in her, on the return journey. That's Amsterdam! The Water Studies Centre hosted a workshop given by the eminant, personable and energetic phytoplankton ecologist **Colin Reynolds**. Participants from management, consulting and University found Colin's presentation stimulating and a

dymanic discussion followed. **Gillian Beattie** has been trying to convice members of one of the CRCFE's integrated projects that the winerys around Nagambie are not the only reason to have field sites on that part of the Goulburn River.

At the Melbourne Water end of the Water Studies Centre...

Chris Walsh, Jason Sonneman, Tim Gippel (CRC Catchment Hydrology) and **Peter Breen** are writingup their study of macroinvertebrate and algal communities of 10 streams in and around Melbourne, while the fifth member of the group, Andrew Sharpe, swans around Europe and Asia. **Jason Sonneman** is again burning the candle at both ends and has also been collecting mountains of existing water quality data to select sites for his PhD project on using diatom communities in the assessment of water quality. **Chris Walsh** is just about on his last worm in his experimental study of habitat restoration in urban streams and **Peter Breen** and **Chris Walsh** are working with **Barry Hart** and **Ian Lawrence** to put together a large integrated project on the Yarra River. As stage 1 of the project, **Jennifer Davies** is compiling a bibliography of available information on the system.

From Rhonda Butcher and Sabine Schreiber

Things have been pretty stable in the limno lab over the last 6 months, but some big changes are in store for the next 6 months. The big news is the imminent departure of **Shane** and **Jacqui Brooks** to the States, where **Shane** will take up a post doc position with **Margaret Palmer** at the University of Maryland for three years. **Jacqui** who has been doing a post doc on monitoring hydrological changes in wetlands has actually finished this week. By the time this is in print Jacqui and Shane will be new parents, with Jacqui due to have their first child early in November. Congratulations !!! They will both be sorely missed by all in the department and in particular by those in the limno lab. I'm sure everyone that knows them will join us in wishing them well for their stay in the States. **Michael Reed** has taken over Jacqui's position having recently handed in his PhD in Paleolimnlogy (something to do with billabongs, old and dead diatoms, and other things).

Sam Lake has just returned from a two month trip around the States and Spain where he attended the Ecological Society of America conference in Albuquerque, and the International Symposium on Regulated Streams in Tennessee Valley. And yes, Sam did actually stay at the Chattanooga Choo Choo Holiday Inn. The trip to Spain involved some collaborative work on Mallorca, but we haven't been able to pin him down for a full report on the trip yet. Perhaps for the next newsletter.

Keith Ferdinands finally (after several short term positions) finished in the lab and subsequently moved to Darwin. He is now working with **Michael Douglas** at NTU. **Paul Reich** is soon to depart to Melbourne University where he will begin a PhD potentially on riparian stuff with **Barb Downes**. Congratulations to **Jim Thomson** on

winning the ASL students prize. He is progressing with his thesis, busily analysing data and hoping to finish up sometime in the summer. **Maria Vazquez** is also progressing well on her thesis.

Rhonda Butcher is sorting through large numbers of samples from her temporary and permanent wetlands and will be picking bugs for the foreseeable future. Her wetlands are dry this year so a hiatis in sampling will allow her to concentrate on getting through her existing samples, then focus on the temporary systems next year (hopefully). **Sabine Schreiber** is also busy processing samples from her experiments.

Alena Glaister and **Leanne Matheson** continue to undertake field work monitoring algae, which they assure us they will be finishing sometime soon. **Alena, Sam** and **Barbara** have been tripping round the Strathbogies checking out potential sites for their new CRCFE program on river restoration.

Notice to the Victorian members of ASL

I intend to start up the "Victorian Chapter" seminars again, held in previous years at the Sir Robert Peel pub. The seminars will probably be held every two months, with a variety of speakers....be warned, you may be contacted! If you have any ideas, wish to contribute, or know of any visiting limnologists, then please help me out!

I am also organising an email distribution list of Victorian members to keep you informed, but I realise that not all of you have access to email. If you wish to be kept informed of these seminars and any other events, and you don't have email, then let me know.

As a kick start to the series, I am organising a combined Christmas get together and farewell to Shane and Jac Brooks, probably on December 5th. This is not a final date however, so again, if you want to be included and you are not on the email list, then let me know.

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SOUTH AUSTRALIA

Australian Water Quality Centre
Stream Ecology Unit

Three new projects have been added to the biomonitoring schedule. Adelaide relies on water from NSW, Victoria and Queensland which reaches our storages via the Mannum pipeline and then the Torrens and Onkaparinga rivers. The rapid inflow of River Murray water is turbid, alkaline and chlorinated. One project involves directly monitoring this impact and two catchment studies are seeking baseline community data.

Dawesley Creek in the Adelaide hills is impacted by acid drainage from an old pyrites mine. Two Honours students from Adelaide University and one from Flinders University are investigating the impacts of pH as low as 2.5 on various fauna in the Creek. ANSTO is partially funding the projects and AWQC is providing it's long term biomonitoring results and phys-chem data set to assist them.

Sam Wade has joined the team for six months, he was seen moping around the lab in a dejected manner while **Dennis Steffensen**, **Peter Schultz**, **Vladimir Tsymbal** and **Paul McEvoy** were enjoying the 1997 ASL conference. **Chris Madden** failed to attend due to a new arrival **Kealyn** born on 18th August (the real reason was that everyone else had buggered off and no-one else was left to person the microscopes!) The MRH team is currently hoping to find out soon if enough money is available to go sampling again this springtime so that 2 sample periods can be used in the FNARH. We need to know soon before spring turns into summer!

To prove he is a habitual limnologist **Peter Schultz** is planning to sample the Warburton River while he is on holidays up the Birdsville Track. What he doesn't know is that whatever he collects we expect him to count!

Special sporting comments (especially for the Victorians); congratulations to the Adelaide Crows on their outstanding victory in the AFL Grand Final. What a top effort!! Replicatable in 1998.

CRC FOR FRESHWATER ECOLOGY

New members welcomed at CRC annual meet

The Cooperative Research Centre for Freshwater Ecology welcomed new members to its fold at its recent annual meeting at the MDFRC in Albury.

The new members include five staff from the Victorian EPA's Freshwater Science Unit – **Jan Barton**, **Peter Newall**, **Leon Metzeling**, **David Robinson** and **David Tiller**. **Keith Walker** from the University of Adelaide is another recent addition to the CRC.

Among the issues discussed at the annual meeting were the impending Five Year Review and the new integrated research portfolio which will take the CRC through the remainder of its seven-year life. So far, five new projects have been approved:

- Ecological Functioning of Lowland Rivers - led by **Ben Gawne**
- Sediment-Nutrient Processes – led by **Ron Beckett**
- Biological Assessment of River Health – led by **Richard Norris**
- Restoration of Degraded Rural Streams: The Granite Creeks Landcare Project – **Sam Lake**
- Taxonomy, Systematics and Evolution of Australian Freshwater Turtles – **Arthur Georges.**

Also announced at the annual meeting was the appointed of Prof **Barry Hart** as the manager of the CRC's research portfolio. Barry's responsibilities will include finalising the existing research portfolio and putting in place the new one.

The Chairman's Award was taken out by a very surprised and speechless **Darwin Baldwin. Darren** received the award for his contribution to phosphorus chemistry and dynamics within the CRC. Congratulations!

Paul Humphries swept up the prestigious and much-coveted Director's Award without much in the way of competition.

The only other serious contender, **Patrick Driver**, said "I'm only glad there is a Paul Humphries in this world". **Patrick** was nominated for his success in clearing the men's change room at a local swimming pool by pulling a white lab coat and plastic gloves out of his sports bag – very innovative!

In presenting the garland, Director **Peter Cullen** said, "Paul really put in a big effort this year and was nominated not once, but several times for this much sought-after award. The difficulty was deciding which nomination was most worthy of the award."

While his ability to take the art of 'silliness' to new heights was duly recognised and applauded, it was his skill as an outdoorsman which earned **Paul** the award. Knowing floodplains as well as any river researcher should, **Paul** chose a rather vulnerable camp site while on a recent field trip and woke the next morning to find himself stranded on an island.

AUSRIVAS on screen

Richard Norris and **Sue Nichols** made their world screen debut recently during the premier showing of the AUSRIVAS training video held in Oxford, England. Sharing their glory was television comic, **Vince Sorrenti**, who presented the training video.

Richard Norris took the opportunity to present the video to his international colleagues at RIVPACS workshop held at the Oxford University during September – and it got the thumbs up!

Produced by the CRCFE in conjunction with LWRRDC the video, was aimed at providing staff from natural resource agencies with an overview of the sampling methods being used by the National River Health Program in its first national assessment of river health. It should be available soon.

Exploring joint research options for carp control

Researchers from the CRC for Vertebrate Biocontrol and the CRC for Freshwater Ecology met at the University of Canberra to discuss collaborative options for carp control. Prof **Bob Kearney** coordinated the meeting with the assistance of consultant, **Karyn Davis**, who recently completed a PhD with the CRCFE on carp genetics.

Other participants were: Prof **Peter Cullen**, Drs **John Harris, Terry Hillman** and **Peter Gehrke** from the CRCFE; and Drs **Bob Seamark, Lyn Hinds, Roger Pech, Michael Holland, Chris Hardy** and **Stephen Davis** from the CRC for Vertebrate Biocontrol.

The meeting brought together the CRCVB's expertise in fertility control and species-specific poisons with the CRCFE's knowledge of carp biology and impacts, environmental rehabilitation options and the possible ecological implications of control options.

The meeting identified three priorities which should be investigated for developing strategies for carp control, including:

1. environmental rehabilitation;
2. use of known diseases; and the
3. development of species specific poisons or baits.

A secondary priority to be investigated was developing methods for fertility control, a control option that is currently hampered by a lack of knowledge about carp biology such as mortality, breeding and recruitment.

The two CRCs hope to develop a draft proposal for a comprehensive project aimed at investigating carp control options.

Education kit stirs up a storm about urban water

Encouraging the community to take actions to improve the quality of local stormwater is the aim of an education kit which was launched by the ACT Minister for the Environment, Land and Planning, **Gary Humphries**, at the CRCFE's University of Canberra laboratory during August.

The kit, a joint project between Environment ACT and the Natural Heritage Trust, was launched as part of the University's Environment Awareness Week. About 40 representatives from the ACT Government, natural resource agencies and community groups, as well as the media, attended the launch.

The kit, *Stormwater – Catchment Management and Landcare* contains classroom activities which encourage children to improve water quality in their own backyards and schools. It kit will be distributed free to regional schools, CIT and key agency staff who work with community groups. Contact ACT Environment for more information.

Stormwater management in Sweden

At the invitation of the Engineering Foundation, the CRC's Urban Water Program leader, **Ian Lawrence**, presented a paper to the Stormwater Management: Creating Sustainable Urban Water Resources for the 21st Century Conference in Malmo Sweden.

Attended by 90 delegates from 18 countries, the Conference focused on the frequent failure of substantial investment in urban stormwater pollution control to deliver measurable improvements in water quality. It aimed to examine approaches that have worked and those that haven't, and to draw out principles guiding a more effective approach to sustainable urban water management in the future.

The principal Conference themes included sustainable urban water management, best management practices, integrated water design, administrative frameworks, and urban water research and monitoring.

A full conference report is available on the CRCFE's Home Page at: http://lake.canberra.edu.au/crcfe/

River regulation symposium

Also on the international conference circuit were **Peter Gehrke, John Harris, Martin Thoms** and **Sam Lake** who attended the Seventh International Symposium on Regulated Streams in Chattanooga, Tennessee.

The theme of the symposium was *Managing Rivers for Biodiversity*, with sessions focusing on:

- Terrestrial-aquatic interactions
- Ecological responses to stream regulation
- Methodologies and approaches for determining ecological flows
- Physiochemical responses to stream regulation
- Assessing, managing and monitoring rivers
- Restoration of tailwater habitats
- River rehabilitation - science and management, case histories and backwater habitats and secondary channels.

Peter presented a paper discussing differences in fish assemblages between regulated and unregulated rivers in the Hawkesbury-Nepean River system. **Sam** presented, "River Regulation and Fish Larvae', a paper authored in collaboration with **Paul** Humphries.

On return from the conference, **Peter** commented that Australia was well-advanced in its approaches to understanding and restoring regulated rivers.

> "I got the impression that within the CRC for Freshwater Ecology, and with the NSW Government's Water Reform Package, Australia is relatively advanced in its approaches to understanding and restoring regulated rivers," he said. "Other countries represented retained an out-dated single-species focus, commonly directed at salmonids. Australia also appears to have a much stronger emphasis on biotic communities as functional entities in managing river ecosystems, rather than developing management strategies based on the requirements of single species."

Bits and pieces

CRCFE student **Marcus Stowar** received first-class honours for his thesis, *Effects of suspended solids on benthic macroinvertebrate fauna downstream of a road crossing, Jim Jim Creek, in Kakadu National Park*. **Marcus** was supervised by **Richard Norris** (CRC) and **Chris Humphrey** (ERISS).

Ken Thomas (CRC, University of Canberra) has hung up his waders and resumed his post at the Commonwealth Public Service. **Ken** is now working with Environment Australia's Biodiversity Group in it Water Policy section.

Best wishes for a speedy recovery to, **Lisa Evans** (joint winner of the ASL PhD Prize), who is convalescing after a pretty bad fall from her horse.

Melissa Parsons has been sorting and identifying her PhD macroinvertebrate samples for the last four months. At the current rate, she calculates that it will take her nine years to get through all the samples!

Ian Lawrence has a new project up and running which will analyse 20 years worth of historical data on Burrinjuck Reservoir, looking at trends in water quality and algal growth. Among his many and varied activities, he is busily finishing off the models and guidelines which have come out of his work on urban pollution control ponds.

Phil Sloane, **Sue Cunningham** and various others are currently out and about in the sunshine sampling the second round of the First National Assessment of River Health sites.

Dan Mawer is continuing on the riparian project with **David Williams.**

After swearing he would never do bugs again, **Sean Grimes** is back for two months to finish sorting the macroinvertebrates from the Thredbo channel study and to write up the results as a paper.

Patrick Driver is finishing up the NSW River Survey carp chapter.

Glen Brown will be submitting his PhD thesis next week (title: Towards an in situ technique for investigating the role nutrients play in epilithon growth in an Australian upland stream). This project was undertaken through the CRC for Freshwater Ecology at the University of Canberra). **Glen** has started working in the Commonwealth Department of Environment.

Murray-Darling Freshwater Research Centre

Eduardo Aparici, from Univ. of Valencia, Spain, spending 3 mo. in Microfauna Lab. with **Russell Shiel. Eduardo** is working on evolutionary adaptations of sex allocation in rotifers from natural (billabong) populations.

Russ Shiel attended inaugural Soc. Aust. Syst. Biologists meeting held at the University of Adelaide Sept. 29-Oct. 03. A timetabling clash with ASL meant that not many ASL members attended the SASB meeting, which was nevertheless well supported by an eclectic cross-section of >200 professed Australian systematists.

Terry Hillman has returned from a six week stint at Monash Uni. working closely with **Gerry Quinn**. The time was proportedly spent writing up the recently completed project looking at the Spatial and Temporal variation in Ovens River billabongs.

Alan Chick, **Chris Knight** and **Marijke Korting** have recently accepted redundancy packages. **Alan** immediately wisely invested in the Mullengandra hotel (40 km north of Albury on the Hume highway). **Chris** is relaxing around home considering several options and **Marijke** is retraining in the tourism field at Wangaratta TAFE.

Fiona Belcombe with some help from **Steve (Harry) Belcombe** has given birth to a boy named **Jack Harold Belcombe**. All three are doing well.

In August **John Hawking** returned from a six weeks in Europe where he attended the 14th International Symposium of Odonatology in Maribor, Slovenia, presenting a paper on the Conservation of Australian dragonflies. A few days were also set aside for field studies and he had the opportunity to collect some of the unusual as well as the common European species. **John** was also able to visit the SIO central library in Amsterdam (looking for those obscure dragonfly papers), spent a few days at the British Museum looking at type material of Australian dragonflies (all from the turn of the century) and visited the FBAs Ferry House Laboratory on the banks of beautiful Lake Windermere.

ACT

Kim Jenkins is the new ASL Executive Officer for the ACT and is trying to locate any ACT based limno's (who are not part of the CRC). Flicking through the 1996 Directory revealed a few, but if you are a new member from the ACT, or simply one of the many whose email addresses bounced back at her- please send her your email address. Then you too can look forward to a quarterly email begging you for any news of ACT limnological activities. Anything!

NSW National Parks and Wildlife Service

Kim Jenkins has recently left **Sue Briggs** lab to work with the southern zone office of NPWS in Queanbeyan. Expecting the world to be full of furry vertebrates and forests, she has been sentenced to more months of muddy, mozzie infested swamps. She is putting together a database on wetlands in the NSW South Western Slopes bioregion (1:100 000 maps Albury, Walbundrie, Lockhart, Holbrook, Wagga, Coolamon, Rosewood, Tarcutta, Junee, Cootamundra, Young, Yass, Booroowa and Cowra). This database links in with **Roger Good's** project to identify and manage remnant vegetation in this area. She would like to hear from anyone who knows of past/present/future projects in this huge area (and anyone who can tell her what a

bioregion is). Also if you would like to find out more about NPWS volunteer conservation agreements please contact **Kim**.

For those who are interested in the NSW Water Reform- community briefings for the Murrumbidgee River are being held in November; 3-11 at Tumut, 3-11 at Cooma, 4-11 at Qbn, 7-11 at Yass, 7-11 at Gundagai, 12-11 Wagga wagga, 12-11 at Leeton, 13-11 at Griffith, 13-11 at Hay, 14-11 at Balranald. (contact your local DLWC, EPA office for details, for an information pack on NSW Water Reforms call 1800 638 996.)

Sue Briggs is trying to get the grey soil off her boots, and is starting a new project on vertebrate biodiversity in woodlands in the wheat-sheep belt in NSW in collaboration with **Julian Seddon** and CSIRO colleagues. (Now would be a good time to make bets with **Sue** that she will be able to avoid grey soil!) Before heading in new directions **Sue, Kim, Julian** and **Steve Thornton** were busy finishing reports on lakebed cropping and water regimes in the Murray Darling Basin. The following are available: An inventory of lakes in the Western Division of NSW; Guidelines for managing cropping on lakes in the Murray-Darling Basin; Wetland invertebrates and flood frequency on lakes along Teryaweynya Creek; and a Summary report (close to finished)-Management of water regimes and cropping in Murray-Darling lakes. Incorporated in that report are chapters on working with landholders to achieve wetland conservation and Principles for managing Menindee Lakes and similiar wetlands.

CSIRO-Land and Water

Brad Sherman and colleagues from the destratification and water quality project are currently working on reducing all the data from the Chaffey Dam project and getting it out in print. The field data acquisition stage is pretty much completed now. In the next couple of months **Brad** will be presenting results to NEMP, AWWA, SACC workshops and to the ISEE symposium in Perth next month.

CSIRO-Entomology

Peter Cranston is on long service leave working with **Don Edward** in UWA. **Gunther Theischinger** is curating the minor aquatic groups at the ANIC, working in Canberra for one week every month. **Edgar Riek** has recently donated his reprint collection to the ANIC and **Gunther** is sorting through this fine collection of the older literature.

Feral fish control.

Perhaps the most significant event to report on since the ASL congress is the opening of the NSW fishing season. Gone are the bleak endless winter days and the weekend lie-in. Now the dust is flying on the roads to the ***** and ***** and the stories are spinning. Some of us have taken a vow not to gesticulate when talking about fishing (try it sometime). News from Albury indicates they've been at it too...."I got five at ? on Saturday but they were all smallish-best about 12 inches". We hate to say it but we got seven in the ***** last Saturday and they were all bigger than yours. We don't enjoy it really.

WESTERN AUSTRALIA

Western Australian Museum

Mark Harvey is currently completing his long-overdue manuscript on the water mite families and genera of Australia, which should be printed some time next year. Stay tuned and keep your mites handy!

Miscellaneous

Jacob John is organising the 15th International Diatom Symposium from 28 September - 2 October 1998. The Symposium is to be held at Curtin University and includes some interesting mid- and post-Symposium tours. Circulars can be obtained from Jacob: jjacobjo@cc.curtin.edu.au.

Andrew Story is organising a forum to address the issues associated with plans to develop irrigation along the Fitzroy River in the Kimberley. It is likely that ASL will be involved in promotion of this forum.

The Swan River is being destratified with a bubble curtain! As the 'salt wedge' begins its seasonal propagation upstream it is being met by a bubble curtain in the middle of the upper reaches. The aim of the curtain is to mix the fresh and salt waters and prevent some of the water quality problems associated with the anoxic salt wedge. The marine water, however, never heard the plan and is not moving at a constant rate upstream. Instead it is oscillating over large distances depending on tides and variable river discharge. The Water and Rivers Commission is closely monitoring the effect of the destratifier along with Murdoch University (effects on fish - **Ian Potter** and **Margaret Platell**), Curtin University (effects on zooplankton) and UWA (**Terence Chan** from CWR has recently commenced a Ph.D. to look at this and other remediation techniques on the Swan River).

NORTHERN TERRITORY

ERISS

from: Chris Humphrey

In tune with ***eriss***' move into more commercially related wetland research, **Max Finlayson** has been spending some effort developing contacts/ collaborative links and seeking advice on funding sources. Hopefully more on the outcome of these efforts in future newsletter reports.

In the wetland ecology group **Bob Pidgeon** has been helping Michael Douglas dodge fires and select field sites for the paragrass impact study on the Magela floodplain and scratching what remains of the hair on his head thinking about how to sample fish in stands of paragrass 2-3 m deep without getting in with the crocs. A project evaluating the use of radar imagery for monitoring wetlands has commenced. This involves Tony Milne and colleagues from UNSW and ***eriss***. ***eriss*** staff will be doing the GIS work and ground truthing of vegetation and water. **Ben Bayliss, James Boyden, Ann Bull, Kym Brennan** and **Bob Pidgeon** have all got their feet muddy with this work so far. Kym Brennan and Bob Pidgeon are hastily preparing a proposal to undertake fish and vegetation survey work on the Djelk wetlands at Maningrida for the Bawinanga Association before the Wet really sets in and the radar project has been useful for that exercise as well. With forecasts of El Nino causing a late onset of monsoons we are expecting a number of fish kills to occur this Wet but, with luck, most of us will be away for Christmas and won't be here to smell them.

Speaking of aboriginal issues, ***eriss*** has been discussing further opportunities for work in this area with the Northern Lands Council (NLC) and others. It is hoped that the Djelk wetlands sampling program will continue, enhancing the work being done by **Lisa Thurtell** on the management planning information base. (Some of this work was presented by Lisa at the ASL congress in September.) This has led to IUCN asking ***eriss*** to jointly contribute a case study on local community involvement in wetland management for the Ramsar Conference in 1999. **Dean Yibarbuk** (Bawinanga Association) and **Michael Storrs** (NLC) will collaborate with ***eriss*** on this. The Caring for Country program will advance further with an NLC workshop to coordinate wetland effort in the Arafura Swamp being proposed for late 1997.

Several research projects commenced or continued in the last few months in the risk assessment/ecotoxicology program. Nadine Riethmuller continued her Masters project on the effects of water hardness and dissolved organic carbon (DOC) on uranium and copper toxicity. At the moment it appears that increasing water hardness decreases the toxicity of uranium to the purple-spotted gudgeon, *Mogurnda mogurnda*, but not the green hydra, *Hydra viridissima*. August saw an assessment of the toxicity of Gadjarrigamundah (Gadji) Creek water, a waterbody acidified due to spray irrigation

of tailings water from the now decommissioned Nabarlek uranium mine, in western Arnhemland. The water, containing potentially toxic levels of aluminium (Al), exhibited no, or very little toxicity to three local aquatic species. It is thought that the low toxicity was due to complexation of the Al with high levels of naturally occurring silica. Chemical analyses will soon shed some light on this. We also had a work experience student commence and complete a successful assessment of the suitability of the black-striped rainbowfish, *Melanotaenia nigrans*, as a laboratory toxicity testing organism. Finally, a draft discussion paper on early warning systems for detecting ecological change in wetlands was sent to the Ramsar Technical Committee meeting in September.

On the biological monitoring front, **Chris Humphrey** is up to his neck finalising Monitoring River Health reports on QA/QC and temporal variability of macroinvertebrate communities. Chris was one of 5 Australians who attended an International workshop on RIVPACS at Oxford Uni in September; various AUSRIVAS perspectives were presented. Workshop proceedings are to be published as a reference text. The sad news for us will be the departure of **Ruth O'Connor** from the program as of late October. Ruth will be resigning to take up a two year study of the ecological effects of Para grass on Magela floodplain - a collaborative project with NTU and Griffith Uni, see above. True, Ruth won't be far away and will still be collaborating with us in the future. All the same, we wish her all the best for her future - based at NTU in Darwin - and thank her for her enormous contribution to the ***eriss*** macroinvertebrate program over the past two years. In the short-term at least, **Lisa Thurtell** will ably step into Ruth's shoes to continue this work.

In the March 1997 Newsletter, the review of the NWQMS Australian Water Quality Guidelines for Fresh and Marine Waters, being coordinated at ***eriss***, was described. The review continues. The first drafts of the revised document 'Guidelines for Fresh and Marine Water Quality' have been compiled by **Kevin McAlpine** and distributed to the Project Committee, and subsequently the ARMCANZ/ANZECC Contact Group, for workshopping. With Kevin, **Chris Humphrey, Rick van Dam** and **Chris leGras** of ***eriss*** have each been involved in coordinating and providing material for different aspects of the new Guidelines; many other groups and individuals across Australia have been consulted/ contracted in the process. The technical phase of the revision is now largely complete with several new and innovative approaches incorporated into the document, particularly for the protection of aquatic ecosystems. For example: there is a move away from using single number guidelines (for general application) to a risk-based approach that can be used to derive site specific water quality guidelines; there is an increased emphasis on the use of biological indicators for assessing water quality within the wider context of ecosystem integrity; guidelines for sediment quality have been included to complement the water quality guidelines; focus is on managing issues rather than individual water quality parameters. Kevin now faces the rather daunting task of editing the document before seeking approval for its release for public comment - now expected early in the new year.

ISSUES IN LIMNOLOGY

The Issues in Limnology section provides a forum to raise and discuss important limnological issues.
The views expressed in this section are not the stated position of the ASL Society as a whole, but reflect the views of the members whose name is included.

The Fitzroy River

There is a Western Australian State Government-backed proposal to impound major tributaries of the Fitzroy River to supply water for irrigated agriculture (in the first instance, cotton) on parts of the floodplain of the lower Fitzroy River. The Fitzroy dam proposal would involve a huge dam at Dimond Gorge, flood vast areas of spectacular and remote country, and threaten the habitat of the rare and beautiful Gouldian Finch. The river itself, and its abundant natural values, would be all but destroyed under the proposal. The Government's intentions were made clear last month when they appointed a joint venture, consisting of the Kimberley Agricultural Industries Pty Ltd and Queensland Cotton Holdings to conduct a feasability study of the proposal.

Given our current knowledge of the effects of river regulation and irrigated agriculture, it is highly likely that there will be downstream effects on various components of the aquatic ecosystem (main river channel and floodplain). At this stage, there appears to have been very little consideration by the State Government of the ecological consequences of this proposal.

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WETLANDS ON FIRE

Statement issued by the Standing Committee of the Ramsar Convention on Wetlands (2 October 1997, Gland, Switzerland)

[This appeared on The Ramsar STRP List which is a closed mailing list for official communications on STRP issues. Opinions posted here do not necessarily represent the views of the Bureau or the Parties. For help, contact the list owner (ramsar-owner@indaba.iucn.org).]

Up to 70 million people in six Southeast Asian countries have been affected in recent weeks by the thick smoke which has blanketed the region as a result of large scale, uncontrolled forest fires in tropical peatlands. And it doesn't end there.

Experts predict that the long-term impacts of this incident, which is being billed as "one of the world's greatest man-made environmental catastrophes", potentially more threatening than the Gulf War oil fires in Kuwait, will extend well beyond the realms of human health and well-being. These fires threaten a wealth of ecological resources and the socio-economic structure of settlements in the region, through decreased forest productivity and decline in food production. A whole range of industries from tourism to electronics and palm oil production may also suffer.

The 27 countries from all regions of the world and 4 global NGOs gathered in Switzerland for the annual meeting of the Standing Committee of the Convention on Wetlands (Ramsar, Iran, 1971) have expressed their grave concern at this disaster. Mrs Louise Lakos, Chairperson of the Standing Committee, noted, "The members of this international conservation body drew attention to the fact that a large proportion of the area burning is peat swamp forest, which constitutes an important global wetland type which we cannot afford to lose. Time is short and action is needed urgently."

Peat swamp forests are waterlogged forests growing on a layer of dead leaves and plant material, up to 20 meters thick. Their continued survival depends on a naturally high water level which prevents the soil from drying out to expose combustible peat matter. Peat swamp forests provide a variety of goods and services, both directly and indirectly, in the form of forestry and fisheries products, energy, flood mitigation, water supply and groundwater recharge.

The countries of Southeast Asia, in particular Malaysia and Indonesia, have more than 20 million hectares or 60% of the global resource of tropical peatlands. Initial estimates indicate that the fires have spread to forests covering 800,000 hectares of peatlands. Fires in these peatlands are unique in that they create many times more smoke per hectare than other forest types, and they are almost impossible to extinguish without restoring the naturally high water levels in these swamps. The fires go deep underground and can burn uncontrolled and unseen in the peat deposits for several months on end.

In the past 10 years, there has been an increasing incidence of major fires in the peat swamp forests of the Southeast Asian region. In East Kalimantan, Indonesia, one fire which started in September 1982 lasted for 10 months and affected more than 35,000 hectares. This 1982 fire followed an almost unprecedented period of drought in the region associated with "El Nino", the same climatic event which is being blamed for the severity of the present situation.

The contribution of tropical peatlands to the global carbon cycle is higher than those of most of the temperate zones: 15% of the global peatland carbon may reside in tropical peatlands. These prolonged peat fires are releasing a massive amount of carbon dioxide and particulate matter and contributing to global warming and long-term climate disruption.

The Convention on Wetlands, commonly known as the Ramsar Convention, is a global intergovernmental treaty on conservation and the wise use of wetland resources. It has 103 member countries world wide and provides the framework for international cooperation on wetland issues.

The Convention promotes the concept of the "wise use" of wetlands, which is an ecosystem-based approach to natural resource management. This approach is echoed in the ASEAN (Association of South-east Asian Nations) Agreement on the Conservation of Nature and Natural Resources established in 1985. Among the elements of the Agreement is a call for the establishment of regimes for preservation of vegetation cover and for the management of forest resources.

The Ramsar Convention recognises that the sound management of water resources and peat swamp forested wetlands is of critical importance in the development of countries in Southeast Asia and to the conservation of biological diversity globally.

Mrs Lakos commended the governments concerned, and the global community, for the prompt actions they have taken to address this problem in the spirit of international cooperation. She noted that the Standing Committee of the Ramsar Convention strongly believes that the following actions need to be undertaken to address the immediate and long-term effects of these fires:

- a concerted global effort to put out the fires;
- an assessment of the short and longer term economic, social and environmental impacts of this disaster;
- a critical review of all current practices and proposed development initiatives in tropical peat swamp forests in the countries of the region;
- the development and implementation of integrated management plans for peat swamp forests, which take into account the varying ecological, physical and socio-economic functions and resources they provide;
- the inclusion of more peat swamp forest sites in existing protected areas systems, and the designation of additional peat swamp forest sites to the Ramsar List of Wetlands of International Importance.

Mr Delmar Blasco, Secretary General of the Convention, noted that "The Ramsar Convention provides the framework for a concerted global effort to effectively address this problem." He called for :

- Contracting Parties to the Ramsar Convention that have experience in peat swamp fire control and management to offer their technical and financial assistance to the affected countries on an urgent basis.
- Representatives of the Ramsar partner organisations in the non-government and private sector in the region to provide technical support to the affected countries.
- Cooperation with the Framework Convention on Climate Change to address the regional and global climatic impacts of these fires.
- A special session to address the issue of the management of peat swamp forests to be convened during the Asian Ramsar Convention Regional Meeting, scheduled to be held in Malaysia from 25-29 November 1997.

For further information, please contact the Ramsar Convention Bureau, Rue Mauverney 28, CH-1196 Gland, Switzerland (tel +41 22 999 0170, fax +41 22 999 0169, e-mail ramsar@hq.iucn.org).

The Forgotten Fauna: Have you seen any molluscs lately?

There are alarming signs that snails, mussels and other bivalves are declining throughout some regions of Australia, particularly the Murray-Darling Basin.

In South Australia, for example, 16 snail taxa have disappeared from the River Murray. The viviparid *Notopala hanleyi* is confined to irrigation pipes and only ancylids (*Ferrissia* spp.) and the introduced *Physa acuta* remain common in the river. The distributions of freshwater mussels (*Alathyria jacksoni*, *Velesunio ambiguus*) have changed and smaller bivalves (*Corbicula australis, Pisidium* spp., *Sphaerium* spp.) are rare or absent. The changes probably are linked to regulation (impoundment, diversion, wetland drying/flooding and changed river flow patterns), salinisation, chemical use and other side-effects of agriculture and, of course, the advent of carp.

Indications are that the decline is widespread, but supporting data are sparse. Molluscs tend to be over-looked in surveys as they are not adequately sampled by the artificial substrates, dip nets and many other contrivances in routine use. "Clean" samples, free of sediment and debris, are also likely to be free of a key part of the fauna!

We hope to update our knowledge of the range and abundance of the molluscs of the Murray-Darling Basin, and to promote work on their biology, ecology and taxonomy. We are an informal group, and membership is not exclusive. ***Please join us!***

A survey is unlikely to attract grant support at this stage. Rather, we are thinking of "virtual field trips" (just think of the advantages): it should be possible to explore the basin by establishing links with researchers at field sites through the ASL and CRCFE and other networks. We can share information through a central 'data bank'.

We need collections of molluscs from rivers or wetlands with notes to show the date, precise location and habitat data. Please keep collections from different habitats (e.g. billabong, river bank) separate. Shells and/or animals can be sent dry or fixed in alcohol or neutral formalin. Other reliable confirmation of the existence, or prior existence, of particular species in a particular region is valuable too.

Contact

Snail mail: Dr Winston Ponder, Australian Museum, 6 College Street, SYDNEY 2000
Email: winstonp@amsg.austmus.gov.au Tel (02) 9320 6120 Fax (02) 9320 6050

Members of the group so far include: Hugh Jones; Winston Ponder; Fran Sheldon; Keith Walker

ALBURY CONGRESS

Congress Comments and Memories

My congress comment was on the symposia led by guest speakers - what a good idea. It certainly broadens the scope of ASL talks and pushes us to consider themes more carefully in the Congress. As a speaker, I would have preferred to have been given more guidance about what the keynote speaker was to talk about so that the supplementary papers could have been tailored to fit the theme better but this is a minor criticism. Perhaps there should now be calls for themes to help next year's organizers prepare for this? I also wondered what the ASL response would be to presenting some of the stats literature on the web - a sort of running list of references in statistics that some of us find useful for demystifying the plethora of available methods. Just a thought.

Andrew Boulton, UNE

A congress synopsis is a great idea. It will also help the organisers of next years conference (which I am part of) learn what people liked and disliked. My own impressions are;

1. I don't like weekend conferences. I have too many other interests in life (sport in particular) and the weekends are reserved for these.
2. Use of conference organiser to handle bookings. I think it would be alot cheaper and probably just as easy if people looked after there own bookings. If the organising committee provides a list of suitable motels/hotels and hostels etc, it is very simple for people to ring these up and make their own booking.
3. Let some of the more important talks which will attract large audiences (eg John harris's talk on the NSW river survey) be a keynote talk in a large room rather than just being a 15 minute talk in parallel session in a small room.
4. Drinks and nibblies on the night of registration was a great idea.
5. Bringing in some overseas gurus was a good idea, although these must be selected carefully. Local experts should be considered also for plenary sessions.
6. Tim Fischer opening it was a good idea. he provided a different (but useful perspective).
7. On the whole the conference seemed to go very well and the organisers should be congratulated

(Rhonda Sinclair said she would write up a short "How to do it" manual to assist future organising committees. This is a great idea and I hope she finds time to write it. It will help immensely.)

Anthony Scott, CSIRO Land & Water

My main memory of ASL and the following Wetlands workshop, is Terry Hillman turning in circles, singing "I did it my way" into a microphone, whilst wearing red, non-edible underpants (don't ask!).

Deb Nias, Monash

A fairly imporant issue that came up at the recent conference : I do not wish to offend anyone but I would like to say that perhaps ASL is not as friendly as it is supposed to be. I also do not know the best way to let people know this. I talked to a few new faces to the ASL conference scene (mainly students) that found it hard to introduce themselves to people and so met few people at the conference. Perhaps there should be a conscious effort to be more involved in networking. I also thought it was a bit rough to attract as many people to the AGM and then run the meeting without speakers introducing themselves for the benefit of new members. When one new member spoke up about an issue, someone shouted out "Who are you?" and he then had to introduce himself. I talked to a fellow member about this and he agreed that people tended to stay in groups with people they already knew and used the conference more to catch up with old friends but he did not have any ideas as to how I could raise the issue politely.

(a student, name withheld)

A Letter from Tim Fisher, Deputy PM

TIM FISCHER MP
Federal Member for Farrer
Leader of the National Party of Australia
Deputy Prime Minister
Minister for Trade

PARLIAMENT OF AUSTRALIA
HOUSE OF REPRESENTATIVES

JO07089

3 [illegible]
M. Finlayson ML

taf/gj

1 October 1997

Dr M Finlayson
Head of Wetland Protection & Management
Environmental Research Institute of the Supervising Scientist
Locked Bag 2
JABIRU NT 0886

Dear Dr Finlayson

It was a pleasure to officially open the 36th Annual Congress of the Australian Society for Limnology held recently in Albury.

I must say Albury-Wodonga was exactly the right place for your Congress and I congratulate you and your team on all the organisation. I would particularly ask that you pass on my commendation for the part Rhonda played.

Congratulations on all the work being done, both within this area and elsewhere throughout Australia; thanks again and I wish you well.

Yours sincerely

TIM FISCHER

520 Swift Street (P.O. Box 672) Albury, N.S.W. 2640
Telephone (02) 6021 3264 Facsimile (02) 6021 6620

Opening Address to the Australian Society for Limnology, 36th Congress, Albury-Wodonga, 27 September 1997 by:
Tim Fischer, MP
Federal Leader of the National Party
Deputy Prime Minister
Minister for Trade
Federal Member for Farrer

"Water: the lifeblood of the Nation"

Introduction

Australia is the driest of all the world's inhabited continents. We have the lowest percentage of rainfall with run-off, the least amount of water and rivers and the smallest area of permanent wetlands. We have the most variable rainfall and streamflow in the world and our inland streams have very high natural turbidity and salinity.

Much of this has been known for a long time. Sturt wrote in 1826 on finding the Darling River: "Our difficulties seem to be at an end for here was a river that promised to reward all our exertions.... the men easily descended to quench their thirst that the powerful sun had contributed to increase; nor shall I ever forget the cry of amazement that followed their doing so or looks of terror and disappointment with which they called out to inform me that the water was so salty as to be unfit to drink!"

The variability and changes to Australia's water create unique problems for us. The discussion in recent years about the lack of flow of the Darling is not new. Earlier this century the Darling did not flow at Wilcannia for 363 days consecutively. We have never had anything like that in recent years. The science required for studying our inland waters must deal with the incredible variability on our continent.

I know all the delegates here are interested in the science of water in Australia. You must look beyond your specialisation's in science to the role of water economically and socially in this nation as well. The whole is far greater than the parts of ecology and agriculture. The parts are a partnership.

I quote another description of the Riverina area by Sturt in 1829 where he said "It is impossible for me to describe the kind of country we are now traversing or the dreariness of the view presented. The plains are still open to the horizon that here and there a stunted gum tree or a gloomy Cypress seemed placed by nature as mourners of the surrounding desolation. Neither beast nor bird inhabited these lonely and inhospitable regions over which the silence of the graves seem to reign."

This area is now one of the great food production bowls of the world. Farmers in this area are melding economic production and conservation objectives together. Farmers have helped develop and preserve wetland habitats, protecting the feeding and breeding grounds for water fowl and other wildlife. They have planted thousands of trees and native plants. Their unique rotation farming system creates a sustainable environment and achieves the highest rice yield per hectare in the world.

Water and sound farming practices are responsible for the remarkable transformation of the hot, dry plain into a region which is rich in flora and fauna and produces extensive food crops for Australian and export markets.

The irrigation areas of southern New South Wales have become part of the vital East Asian ~ Australasian Flyway. Sharp tailed sandpipers and other birds visit the region on their migratory route. Australia is party to three international treaties to protect migratory birds, many of which feed in the regions rice fields and the irrigation area waterways. Through the introduction of irrigation, biodiversity has increased dramatically in this region.

Rice farmers and the community combined to develop land and water management plans. These set out the best practices for managing irrigation farming and develop community drainage strategies to control run-off after heavy rainfall. They also provide for long-term tree planting and better farm management techniques so the land is preserved for future generations.

The rice industry has put together three main elements in the environmental strategy. They only allow rice to be grown on improved soils which they establish through soil textural analysis of samples bought at intervals across the paddock. No more than one third of the approved rice area on a farm can be used to grow rice at any one time. This provides even distribution over the water landscape and balanced hydraulic water pressure on the water table. Rice growers have a target water consumption level and water use has been declining over the decades as rice growers develop and apply new and improved farm management systems and adopt new irrigation technology. I give these as examples as how scientific evidence and the economic incentives can be put together to deliver for the benefit of all Australians.

The basic research that is coming through this Congress is one of the building blocks for the application of improved knowledge and techniques to the applied users of water that society requires. Enhanced information can only lead to better understanding and better policy making. It is essential that your basic building blocks are not left out of the debate. They need to be used by others firstly for applications to meet the needs of users and also to have a more informed policy debate.

The Federal Government has recognised the importance of an integrated package for the environment that encompasses landholders voluntarily and enthusiastically working to solve our problems. The Natural Heritage Trust will be our primary vehicle and there are a number of specific programmes that deal with our inland water issues.

Restoring Rivers and Wetlands

Natural Heritage Trust programmes will provide funding support to improve water quality, increase environmental flows and restore the ecological health of river systems across Australia, yielding complementary benefits of biodiversity, conservation and sustainable agricultural production.

In February, the government published its Wetlands Policy, which committed all federal government agencies to promoting the prudent use of wetlands throughout Australia. The Government will provide to the year 2001-02 $21.5 million to continue Waterwatch activities and the National Wetlands Programme.

National Rivercare Initiative

The National Rivercare Initiative will provide a budget in 1997-98 of $12.4 million and $97 million until 2001-02 to assist sustainable management, rehabilitation and conservation of rivers outside the Murray-Darling Basin:

- The National River Health Programme will receive $3.7 million in 1997-98 to monitor and assess the health of Australia's rivers through the use of biological indicators and undertake research into the environmental flow requirements of rivers and streams.
- Waterwatch Australia will receive $1.7 million in 1997-98 to encourage volunteers to become involved in water quality monitoring. The programme, already with tens of thousands of participants, aims to raise awareness of the importance of the long-term health of natural waterways and river systems.

The objectives and outcomes of the National Rivercare Program will be achieved through a coordinated and integrated package of measures which focus on:

- community activities for on-ground restorative measures which concentrate on the causes of environmental and resource degradation;
- larger scale projects or works by government or water management agencies which address key factors or barriers to improved water quality management as identified in a catchment or broader regional plan;
- community education and monitoring including Waterwatch Australia activities; and
- a national biological river health indicators and a decision support system for determining environmental flows.

National Wetlands Programme

The Trust will provide $1.8 million in 1997-98 and $11 million until 2001-02 for the National Wetlands Programme to support locally based efforts to rehabilitate degraded wetlands.

The programme promotes the conservation and wise use of the nation's wetlands to improve the management of nationally significant wetlands, and to demonstrate the wise use principle for managing wetlands and monitoring their health.

Murray-Darling 2001 Project

The Murray-Darling Basin is one of Australia's most important agricultural regions.

The Coalition recognises that if the Murray-Darling is to have a sound economic future, immediate action must be taken to rehabilitate catchment and river systems.

The Trust will allocate $163 million for the programme, $29.5 million in 1997-98, significantly accelerating on-ground action within the Basin. The programme will achieve a number of objectives including:

- improvement of the health of key river systems;
- encouragement of ecologically and economically sustainable land use;
- restoration of riverbank land systems, wetlands and floodplains; and
- improvement of water quality.

National Land and Water Audit

Effective management of any resource requires recording its quantity and condition to enable periodic reviews.

Despite the seriousness of land and water degradation in Australia, there has not been a comprehensive record kept to allow accurate assessment over time.

The Trust will provide $37 million for the National Land and Water Audit ($7.5 million in 1997-98) which will be managed by an independent board, to provide the first comprehensive appraisal of the environment, social and economic costs of land and water degradation to the nation.

Albury is home of the Murray-Darling Freshwater Research Centre, a key part of the Cooperative Research Centre for Freshwater Ecology.

Last year, the Cooperative Research Centre opened a satellite laboratory at the other end of my electorate, at Mildura, to provide a base for research on lower parts of the Murray and Darling Rivers.

Australia needs the knowledge coming from the work of the Cooperative Research Centre and other limnologists to help us understand how to manage our river resources. We are now committed to restoring the land and water resources of Australia through the Natural Heritage Trust. But we must base our action on the best available knowledge.

I proudly open this Congress and may your deliberations provide building blocks for a sustainable future for Australia.

THE FUTURE OF ASL

(This is a copy of the document on the 'Future of ASL' as discussed at the Albury Congress)

At the AGM held during the ASL Congress in Berri (September 1996) we accepted the following motion and proposed that we investigated the Future of ASL via the mechanism given below.

ASL forms a policy sub-group to investigate mechanisms (protocols) to

1 Raise the profile of ASL with governmental policy makers and advisory panels etc
2 Deal with external requests for the provision of advice on issues
3 Provide interactive fora to debate conservation issues within ASL
4 Release ASL policy statements on selected issues
5 Maintain the current strengths of ASL
6 And to present options to the Executive and the 1997 AGM.

The Executive asked members to contribute comments and ideas on the above given motion. Five sub-groups were formed from Executive members and a list of voluntary contributors to address each of the individual points in the motion. The comments and ideas from these sub-groups formed the basis of a mailing on the ASL News Group. I propose to introduce the following points to the AGM scheduled for Albury later this month. Please provide comments on this draft. Note that responses from the News Group mailing were few, but overall supportive of the ideas presented.

In Albury we need to firstly seek acceptance of these ideas and secondly, if appropriate, instigate steps to ensure that positive outcomes are implemented. In doing the latter we need to recognise that member participation in day-to-day activities by ASL is low. Thus, any changes are dependent on active support after the AGM, not just goodwill during the AGM. The latter must influence our choice of a new Executive, especially the key office holders. It could also have financial implications - a more active and promotional outlook will not come without increased costs to the Society.

1. RAISING THE PROFILE OF ASL WITH GOVERNMENTAL POLICY MAKERS AND ADVISORY PANELS ETC

ASL has not hitherto presented a profile to governmental agencies that has seen it regularly assume the mantle of providing expert advice to governmental policy decisions or nominating experts to governmental panels. Past attempts to promote ASL as a forum for providing such input have not generally received a favourable response. It is proposed that a number of processes are adopted to promote ASL as a forum for expert scientific debate and advice within governmental agencies. Recent invitations to nominate independent experts to several bodies in Western Australia provides notable exceptions and demonstrates that ASL can fulfil this role.

- The Executive establishes a "policy committee" that encourages and coordinates the release of appropriate statements on topical limnological issues through the various

fora outlined below, with a particular emphasis of bringing this material to the notice of policy and managerial agencies at all levels of government.

- Individual members within policy and managerial agencies are encouraged to promote ASL as a forum for debating limnological issues before, during and after the development of policies that affect aquatic research and management.
- ASL seeks further means of cooperating with other scientific societies (such as Federation of Australian Scientific and Technology Societies, Institute of Biology) through, for example, joint conferences or special events that allow individuals to present credible scientific views on aquatic issues/policies.
- Actively promote the list of ASL members who have volunteered to speak as experts on behalf of ASL, and consider a more appropriate name for the list.

2. DEALING WITH EXTERNAL REQUESTS FOR THE PROVISION OF ADVICE ON LIMNOLOGICAL ISSUES

It is accepted that ASL must maintain scientific credibility in the eyes of both its members and the broader community. Thus, we need to avoid sending a barrage of media releases on all issues that affect the conduct of research into and conservation of aquatic ecosystems. Steps that will assist ASL respond to such issues are given below.

- The Executive be given total authority to develop a procedure to issue policies and/or statements that provide scientific comment on specific issues with ASL seen as the vehicle for debate rather than making pronouncements..
- The list of ASL volunteers is revamped with a clear identification of the role of the list and means of promoting it within and without the Society.
- ASL prepares a list of the Top Ten Limnological issues and actively promotes this and reviews it regularly.
- The Executive actively seeks and supports a few governmental and non-governmental fora (such as the Biodiversity Council, Australian Wetlands Alliance) where it can focus its attention through nominated individuals.
- The Executive creates a position for specifically collating responses for external comments and interaction.
- The Executive is elected for a two year period in order to provide focal contacts for external interaction and to allow individuals time to familiarise themselves with the issues and procedures.

3. PROVIDING INTERACTIVE FORA TO DEBATE LIMNOLOGICAL ISSUES

A *Limnological Discussion Forum* in which issues can be informally debated should be developed and hosted by ASL on a regular and well publicised basis. The forum should allow for the discussion of limnological issues by both ASL members and others, but does not necessarily represent the views of the Society. This can be done through the written/electronic media already operated by the Society and by the hosting of a regular lecture/seminar.

Written/electronic media

- There should be a written/electronic forum within ASL (eg Issues in Limnology section in the Newsletter and an Issues in Limnology part on the Home Page) where members or invited non-members can raise and debate issues.
- The Issues Pages are not the stated position of the Society as a whole, but reflect the views of members or invited contributors (statement to this effect published with each Issue).
- The Issues are not endorsed by the President or Executive (this would also be stated clearly with each Issue).
- The member(s) raising the Issue must act as the spokesperson and include their name, address and contact numbers (and email) before the Issue will be 'published'.

Lecture/Seminar

- There should be a regular verbal lecture/seminar forum within ASL where members and invited non-members can raise and debate issues.
- The lecture/seminar are not the stated position of the Society as a whole, but reflect the views of the speakers (statement to this effect made at the commencement of each presentation and with any advertising material).
- The Issues are not endorsed by the President or Executive (this would also be stated clearly at the commencement of each presentation and with any advertising material).
- The member(s) speaking on the Issue must include their name, address and contact numbers (and email) before the Issue can be presented
- The Executive may decide to formally publish the material presented (this would be made clear prior to the presentation).

4. RELEASING POLICY STATEMENTS ON SELECTED ISSUES

There are two modes by which ASL could release information to the public: i) *Policy Documents* and ii) *Issue Statements*. The procedures for releasing information once it is formulated also need to be addressed at an early stage during the process of formulating a Policy or Statement.

Policy documents and issue statements

Policy Documents

- ASL should produce Policy Documents (eg Wetlands Policy Document) on specific aquatic issues. These would outline the general position of ASL, as represented by a specifically formed sub-group, but would tend to be fairly broad in nature and non-binding on members. ASL would act as the vehicle for distributing informed comment on specific issues under the guidance of the Executive and the AGM.
- Policy documents could be produced for:
    1. Wetlands (already done)
    2. Arid Rivers
    3. Urban Streams
    4. Flow Regulation, etc.

- The Society President and Executive would endorse these documents and ASL would fund the printing of a number of copies to be distributed to a selected audience.
- Policy Documents would be placed on the Home Page and also published in the Newsletter and News Group.
- The Society President and Executive would nominate someone to be the spokesperson for each document (probably the person who was integral in putting the document together).

Issue Statements

At various times ASL will be requested to make statements or it may wish to state the ASL position about specific issues (eg cotton irrigation proposals, environmental flows). This requires a mechanism for the prompt release of ASL endorsed statements suitable for release to the media.

- The material may be put together by any ASL member (with proven relevant expertise) and submitted to the Executive for endorsement.
- Endorsed statements would require the signature of at least five (5) members of the ASL Executive which currently comprises 14 members (5 executive officers, 8 regional members and the editor) and acknowledgment by the President.
- The person who was primarily responsible for collating or preparing the material for the statement would act as the principal media contact - the Executive should also act as regional contacts.
- Release of a statement would be through national and regional media - it is the responsibility of each ASL Executive member to ensure the material is disseminated in their State/Territory under guidelines for media dissemination.

The release of policy and statements

If the release of ASL policy or statements are to "have an impact", ASL will need to become more aware of the media and its requirements for successful publication. A set of procedures (guidelines) should be developed to facilitate the dissemination of ASL information. These should address the following:

- Immediacy of action to ensure a comment on a particular issue gets to the media whilst it is still a hot topic through, for example faxstream addresses of media outlets (on a state/territory basis) being held by the Executive.
- Readily access to media contacts for regional comment with the Executive as the initial, but not only, referral point for each State/Territory.
- Insertion of a standard piece about the ASL (eg its membership, charter, etc)
- Storage of material for immediate release, such as short pieces on recurrent themes of sustainable development of aquatic resources, and the inadequate funding for limnological research.
- Availability of visual material for television, such as standard shots of wetlands, rivers, lakes, land degradation, etc.
- Targeting different forms of media and to time the releases for maximum exposure

5. MAINTAINING THE CURRENT STRENGTHS OF ASL

Open recognition of the values and strengths of ASL is needed and should be constantly reassessed to ensure that relevance and service to members is maintained and/or updated. Some of the current strengths are presented below. It is noted that these strengths can only be maintained by active involvement of sufficient numbers of members.

- ASL has a casual and relaxed manner that is open to all and friendly to newcomers, not daunting to students and is not enmeshed in formal procedures.
- The Society has a strong student base and actively encourages student attendance at and participation in its informal annual congress.
- ASL is essentially a scientific society that encourages debate and presentation of research materials and has no delusions of being a professional society or a political lobby group.

DOOR PRIZE REPORT

In life, there are a veritable plethora of rewards and awards for good performance. Promotion, Performance Bonuses, free cars, frequent flyer points, travel expenses, a sound pat on the back and a sincere "well done" from your boss. But like the Nobel Prize and a place on the Victorian Secret Police Files for Subversives, there are some awards that rise above the pack when status among your peers is involved. The ASL Door Prize is just one of those awards.

The Door Prize is awarded by the Door Prize Collective annually at the annual ASL Congress as a recognition of the activities of ASL members. Not for recognition of brilliant science, data manipulation or public speaking. But an award that recognises innovation, lateral thinking, new approaches to new problems and, more importantly, the plain silly stupid things that go on. In short, it is awarded for the most significant contribution to ASL Congress Culture and folklore.

The nominations received this year are:

The "Monty Python Life of Brian Always Look on the Bright Side of Life" nomination: Awarded to Deputy Prime Minister Tim Fischer, for the implication that instead of being unbelievably high users of our most precious resource (water), rice field actually form an important contribution to our international obligations under a number of treaties dealing with protection of migratory birds (I think that means they are the only wetlands left).

The "So You Think AFL is Now a National Sport" nomination: Easily won by the organising committee of the Congress. Scheduling a Congress on the weekend of the Grand Final made the committee an early favorite, and indeed, almost a certain winner. They lost the final prize only because, after the result, Melbourne probably was the last place in the world someone would want to be - all those hoards of arrogant Adelaide fans roaming the street looking for Victorians to taunt.

The "David Copperfield Magic Show Spectacular" nomination: Margaret Brock's trick involving a retaurant, a lazy susan and a jug of water easily won her this nomination. On hearing the magic words ("Please pass me the water"), a simple flick of the lazy susan made the jug of water disappear and suddenly reappear in the someone else's lap.

John Gooderham receives a special mention in this category for producing a gaily coloured ribbon of cloth from a hat at the start of his talk. The Collective may have misunderstood the symbolism, but it appeared that the cloth was a representation of the CRC Freshwater Ecology. We've heard the CRC called many things, but never a gaily coloured string of bits of cloth.

The "I Blame Jet Lag" nomination (awarded to the most outstanding international guest each year): Picked up this year by James Ward for an inability to tell the difference between a lectern microphone and a lectern light source.

The "Benny Hill is Alive and Well" nominee and Winner for this year: In a break with tradition, the winner this year is not an ASL member, nor has been identified by name. It happened in the Globe Hotel, some time after the end of the Grand Final TV broadcast (for "some time" read "a number of drinks x, where x is a very large number"). ASL members playing pool. With a cry of the magic words "think I'll have another Bundy 'n' Coke", this years Door Prize winner managed to make a certain part of his anatomy appear (the term "flopped" was used in the official nomination) on the pool table over the left corner pocket. Much to Vince Pettigrove's surprise (he was aiming to sink the black in the very same pocket). An act in the grand tradition of the Door Prize, we have declared that unidentified person an official honorary ASL member, and official winner of the 1997 Door Prize.

Post script: An attempt to locate the person the next day failed (we suspect he may surface in about 2 weeks). We have also asked Vinnie to produce an identikit picture which will be published in the next issue ..... or maybe not.

ASL Stubbie Holders For Sale

There are still a few ASL'97 stubbie holders available. If you would like to purchase one please send $7.00 to Rhonda Sinclair c/o MDFRC, PO Box 921, ALbury, 2640, NSW. Specify a colour (blue, green or maroon) or take pot luck.
Make Cheques payable to ASL.

FINANCIAL STATEMENTS

AUSTRALIAN SOCIETY FOR LIMNOLOGY INC

PROFIT AND LOSS STATEMENT FOR YEAR ENDED 31 DECEMBER 1996

	1996 $	1995 $
INCOME		
Bank Interest	2,972	2,912
Congress	69,301	66,942
CSIRO Journals	140	3,675
Special Publications	350	585
Subscriptions - Members	14,775	9,840
- Students	1,330	1,020
- Institutions	985	340
- Life		750
- 10 Year	2,250	
TOTAL INCOME	92,103	86,064
EXPENSES		
Audit Fees	590	565
Bank Charges	136	177
Conference Telephone Calls	1,156	458
Congress	57,123	59,791
- Students Travel Award	1,000	3,050
- Students Prize	300	550
CSIRO Journals	3,500	5,395
Depreciation	1,903	529
Gifts	282	
Honorarium	1,500	2,000
Insurance - Computer	200	200
Intecol 1996 - Donation	3,000	-
Membership Directory	-	1,283
Miscellaneous	32	32
Newsletter	4,449	6,272
Petty Cash	-	50
Special Publications	2,944	45
Stationery/Printing/Office Supplies/Postage	1,521	365
Subscriptions - FASTS	2,205	3,661
Victoria Chapter	-	193
TOTAL EXPENSES	81,840	84,616
NET SURPLUS FOR YEAR	$ 10,263	$ 1,449

AUSTRALIAN SOCIETY FOR LIMNOLOGY INC

BALANCE SHEET AS AT 31 DECEMBER 1996

	1996 $	1995 $
MEMBERS FUNDS		
Retained Surplus	67,071	56,808
Represented by:		
CURRENT ASSETS		
General Bank Account	8,316	11,592
A.N.Z. Trustees Common Fund V2 Plus	39,211	36,811
N.A.B. Deposit at call	3,690	3,649
Receivable - Bio Man Workshop	13,000	
TOTAL CURRENT ASSETS	64,217	52,052
NON CURRENT ASSETS		
Office Equipment	5,285	5,285
less Provision for Depreciation	2,432	529
TOTAL NON CURRENT ASSETS	2,853	4,756
TOTAL ASSETS	67,071	56,808

AUDITORS REPORT

AUSTRALIAN SOCIETY FOR LIMNOLOGY

STATEMENT BY COMMITTEE MEMBERS

In our opinion:

The accompanying Profit & Loss Statement and Balance Sheet are drawn up so as to give a true and fair view of the results of the Society for the twelve months ended 31 December 1996 and the state of affairs as at the end of that year.

President **Treasurer**

18 August, 1997

AUDITOR'S REPORT

To the Committee and Members
Australian Society for Limnology

In the absence of registration records and a reconciled audit trail through to bank records, it has not been possible to verify the accuracy of receipts and payments relating to the South Australian Congress. Except for this activity it is my opinion that the Profit & Loss Statement for the twelve months ended 31 December 1996 and Balance Sheet as of that date give a true and fair view of the state of affairs of the Society and the results of its operations.

LINDSAY C COSTER FCA
Chartered Accountant

18 August, 1997

Glimpses of ASL 97

President Max Finlayson with Deputy PM Hon. Tim Fischer and CRC Director Prof Peter Cullen.

Di, Rosie and Felicity ("Dreaming")

MDFRC "Bag Stuffers"

Jonty advertising the ASL stubby holders

Hump, Dazza. Hugh Possingham and Chicko

TEN EASY STEPS TO GETTING MEDIA COVERAGE OF YOUR SCIENTIFIC CONFERENCE

So you want media coverage for your Conference? Funding a bit low? Public interest flagging? Student numbers in your discipline dropping off? Rumblings from funding sources about "relevance" and "technology transfer"?

There's a growing realisation among scientists and technologists that a bit of well-timed publicity can be a good thing, for all sorts of reasons.

But conferences present a special challenge. For a start, they tend to be big and confusing events, with far too many people and far too much information.

The challenge is compounded by the fact that the scientists giving papers are all away from their labs and their field sites, and thus away from a myriad of exciting picture opportunities.

It can be done! All it takes is time, imagination, an understanding of what appeals to the media, and (unless the conference is in do-it-yourself mode) a judicious injection of funds.

So - ten easy, sure-fire ways to guaranteed media coverage for your conference!

1. Go through the program, pick out the most interesting and controversial speakers (about five?), and the most interesting and relevant papers. Then write a simple summary of their research and its effects. This should not be longer than half a dozen one or two sentence paragraphs, and should be written strictly in lay terms - no unexplained technicalities, no jargon.

   Include contact points for your chosen speakers, and the times they will be available to speak to the media. Include the phone number of a person who can provide more detailed information. Put at an interesting headline at the top, have lots of white space on the page to make it easy to read, embargo the story so it can not be published before the nominated date.

   You have now identified "the talent" for your conference (that's a media

   term. Could be good talent, could be bad talent).

2. Fax the pages off to journalists who cover this sort of story, a couple of weeks in advance so they can include it in their timetables. You will need to follow the media to identify the appropriate journalists - they could be the science, technology, environment, medical, aviation or financial correspondents, depending on the subject of the conference.

   CSIRO has a good list of science and technology journalists, and is willing to make this available.

3. Follow up the fax with a phone call. Did the journalist receive the fax? Does the story interest them? Would they like more information? Offer to re-send the fax if the journalist did not see it - and keep it brief. Journalists are often frantically busy.

Trying to "bait the hook" by drawing a journalist's attention to one among a blizzard of media releases is VERY EFFECTIVE and well repays the time taken in doing it. In the process the conference organisers gain an insight into what the media thinks are the best stories.

4. Make sure the talent is available! They need to be at the phone numbers you gave to the media, at the times you said they would be available. Think of equipping them with a pager or a mobile phone, so you can locate them easily during the Conference.

5. Media needs pictures, but conferences are visully dull. See if you can organise interviews in an interesting location nearby, such as a laboratory or a research site. Or make available some typical and exciting equipment at the Conference site. This will help TV cameramen and newspaper photographers make a better story.

   Or you could provide TV stations with broadcast-quality footage shot on Betacam tape, pictures which are typical and illustrative of the science under discussion. Five minutes is plenty. For television, if there are no pictures, there is no story.

6. Organise the Conference timetable so that the media "talent" gets to speak earlier in the day - 10 am to 1 pm is ideal, 4.30 pm is deadly. This gives the media enough time to cover the story, so it can appear in that night's TV news or the next day's papers.

7. Prepare a media room. It should be equipped with phones, phone sockets and power points for laptops and modems, free coffee, individual working spaces, and copies of abstracts and papers from the Conference. Make it close to the main Conference room, and provide quiet spaces nearby for interviews.

8. Consider bringing the scientist to the journalist! Run media conferences each day, ideally at the same time, in the same place. Make available one (or more) scientists to speak to the media and answer their questions; and if they present two different sides of the same question, all the better. Media like controversy. Around lunchtime is ideal.

9. Consider giving the "talent" media training, to learn the ways of the journalist, sharpen up their interview technique, and find out what it is about their story that interests journalists. A month before the Conference takes place is good.

10. These are the basic nine steps to media success. They can all be carried out by gifted amateurs with a feel for the media, but are best done by an experienced jouralist/communicator.

If the Conference budget stretches to it, consider hiring in an expert to do all this for you. A good one will know the ropes, know the journalists, have the time to do all the legwork, and have the networks to ensure that your conference publicity is widely disseminated.

Media people can also spot the good stories in your Conference program. That can be hard for scientists - what interests you as a professional will often fail to excite the media.

Don't wait until the last minute - get your expert involved at least a month before the event so they can plan the coverage. Ideally you should involve a media person from the very first stages of planning - their ideas can help shape the conference.

Good communicator/journalists will charge about $600 per day for their help, others will charge less. Like all things in life, you get what you pay for.

Australian Science Communicators (ph/fax 02 6248 5846, ASC@asap.unimelb.edu.au) has a free booklet listing 50 communicators with skills in these areas.

And if all the above looks too hard, just remember that we live in the age of poll-driven governments. They interpret "leadership" as putting into effect what the community wants, and gather this information by extensive polling and listening to the John Laws' program.

If S&T does not have public support, then in the long run it will not enjoy the financial backing of the Government.

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and a response from an ASL Member

Dear ASLers

I read with great interest the report from Toss regarding the media and conferences. I offer a few comments about it, and would like to open two questions for debate.

First, I know the media likes "controversy" BUT, I believe we have to be careful in playing this game. One of the problems some of the NGO environment groups have had, is the perception of disunity and disagreement when speaking on environmental issues. This leads to "the community" wondering just what the truth is, and just who to believe. I personally do not think it is a good idea to be deliberately introducing controversy within the scientific agenda just for the sake of publicity. If the public see scientists as not able to agree, then I think we could be playing right into the hands of those who like to use such situations to push their own barrows. There are plenty of examples of this around, but it is especially important when it comes to issues regarding money and resources, as you are all no doubt fully aware.

However, the idea of using a "communicator" for conferences would seem quite sensible as a way of raising ASL profile.

Do ASL members think we should consider using a "communicator" at the next congress??

Second, the idea of "media training" might also be worth considering. We all know how poor some scientists are at public communication, but there are also plenty of examples where they are extremely good too. These "good" communicators are probably naturally talented, but I know that some of them have also had some form of media training too (usually in the form of one or two day workshops).

If we are going to raise the profile of ASL, should we also consider such "training" for a few/one/some/the president only??

Looking forward to your replies.

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60 MINUTES

ASL EXECUTIVE MEETING
TELECONFERENCE ON 24/7/97

Present: Max Finlayson, Alan Chick, Jean Jackson, Nick O'Connor, Kerry Muller, George Lukacs, Pierre Horwitz, Richard Marchant.

Apologies: Margaret Hart

1. **Future of ASL**: the document that has circulated among the executive for comment will be emailed to all members before the Albury congress. A discussion of the document will take place before the AGM.
2. **Email communications**: this approach to keeping the executive informed seems to be working well despite the fact that little response is received from some members.
3. **1997 congress**: Alan Chick summarised the current situation. Abstracts for 120 papers have been received which include 3 key note addresses, 15 invited talks, and 102 ordinary papers. Three parallel sessions will be held. Considerable interest has been shown in the trade stands. The congress will be opened by Tim Fisher (Deputy PM) at 9am on Sat 27 Sept.
4. **Banner**: a banner will be displayed at Albury advertising the society. Construction of this has been very ably organised by Kerry Muller. At this stage the approximate cost is $850.
5. **Resignations from the executive**: Bob Banens and Alan Chick (after Aug 1) have resigned from the executive. Their positions will be re-filled at the AGM.
6. **ASL charter**: George Lukacs has suggested that the society needs a charter which would spell out the functions of the ASL in more detail than is currently given by the constitution. After some discussion it was decided that a separate document should be produced rather than re-writing the constitution. A draft will be produced by the secretary who will circulate it to the executive in Aug.
7. **Finances**: Richard Marchant reported (in M.Hart's absence) that the society's bank accounts contained:
    - - $10566.55 (NAB general account)
    - - $31692.16 (ANZ investment account)
    - - $20248.27 (ANZ V2 Plus).
    - The society has also received a donation ($2000) from the Intecol conference held last year in Perth. The Intecol organisers requested that this money be used to hold a wetlands workshop at a future ASL congress.
8. **Australian Wetland Alliance**: no word has been heard from this group by either the secretary or the president since the society made a donation late last year. Max Finlayson will try to make contact.
9. **Filing of documents**: important documents relating to the society's acyivities should be sent to the

secretary for filing. He maintains all existing records.

10. **Wetland workshop following ASL congress in Albury**: this is being organised by Environment Australia on Sept 29-30 and a number of ASL members have been invited. This workshop will deal with community connections with wetland R&D. Max Finlayson will discuss wetland issues with Environment Australia which seems to have been trying to avoid any involvement with the ASL on this matter.

Pierre Horwitz reported that he had had a reply from Senator Hill to his letter (on behalf of the ASL) about seismic exploration by Santos Ltd in the Coongie Lakes in South Australia. ASL's offer to provide independent technical advice was acknowledged but not sought at this stage.

Next executive meeting will take place at 8pm on Friday 26 Sept in Albury.

ASL Executive meeting, Albury, NSW, 26 Sept 1997

Present: R.Marchant, M.Finlayson, M.Hart, P.Horwitz, K.Muller, G.Lukacs, A.Chick

Apologies: P.Boon

1. **ASL charter**: this has yet to be written by the secretary.
2. **Future of the ASL**: M.Finlayson briefly covered a few issues which would be dealt with more fully at the AGM. He suggested that the society consider abandoning the newsletter in favour of subscription to the news group on the internet. This needs to be kept in mind when the next newsletter editor is appointed and must be discussed with the membership as a whole, preferably at an AGM.
3. **Key note addresses**: these could be published as ASL special publications or put on the home page so that they are widely available to members.
4. **Future congresses**: it has been suggested that the society hold a joint meeting in NZ with the NZ limnological society in 1999. Such a joint meeting can only occur if timing and location are suitable. The new executive will investigate.
5. **Jolly award**: M.Finlayson had been told by the current Jolly award committee that no award would be made this year because a unanimous decision could not be reached about the available candidates. The committee has suggested that current rules governing the award be changed. This will need to be taken up by the next executive.
6. **Finances**: M.Hart explained briefly the financial statements to be presented at the AGM.
7. **Intecol**: ways of using the donation ($2000) to the ASL from the Intecol conference held in Perth last year were discussed. It was suggested that a symposium in honour of Prof. Arthur McComb be held and that the papers given be published as an ASL special publication. P.Horwitz will follow this up with Prof.McComb.

36TH ANNUAL GENERAL MEETING OF THE ASL ALBURY NSW, 28 SEPT 1997

(p=proposed, s=seconded)

1. **Adoption of agenda:** p=R.Marchant, s=W.D.Williams; carried.
2. **Apologies:** P.Boon, A.Chick, K.Walker, R.Beckett, I.McKelvie, A.Arthington.
3. **Acceptance of minutes of last AGM:** p=W.D.Williams, s=P.Horwitz; carried.
4. **Matters arising from minutes:** none.
5. **President's report:** M.Finlayson spoke about a document he had prepared on the future of the society that had been developed in consultation with various members of the executive and other members over the last year. (This document is attached).

   After his address considerable discussion about the merits of suggestions made in this document took place. These mostly focussed on how public statements from the society on limnological issues should be made. Some members suggested only written policy statements should be issued; others felt the executive, after consultation with relevant experts, should make all written or verbal public pronouncements. Finally, G.Jones proposed (s=R.Oliver) that: "the ASL either through its executive or members does not make written or verbal public statements". This proposal was defeated, with 2 members voting for it and the rest of the meeting against it.

   B.Hart then proposed (s=M.Brock) that: "the ASL president be empowered to make public statements on behalf of the society, and all such statements be made only after appropriate consultation with the society membership". This proposal was carried with 70 members voting for it and 13 against. P.Horwitz also proposed (s=M.Brock) that: "the ASL supports the ideas and actions in the futures document and this AGM asks the incoming executive to advance the issues and processes as outlined in that document". This statement was carried unanimously.
6. **Secretary's report:** R.Marchant reported that over the last year two teleconferences of the executive had been held (December 96, July 97). The minutes of these had been or would be published in the newsletter. He informed the AGM that he kept updating the list of ASL experts prepared to speak on behalf of the society and that this list had been recently sent to a number of media outlets. He also informed members that a donation of $2000 had been received from the Perth Intecol meeting to assist with support of any activity related to wetlands research and management. Finally he reminded members that he still had copies for distribution (or sale) of ASL special publications nos. 8, 10 and 11. J.Chambers proposed (s=S.Bunn) that this report be accepted; carried.

7. **Treasurer/membership officer's report**: M.Hart gave the following membership figures:

   ordinary members - 413
   student members - 123
   life members - 23
   year members - 12
   institutional members - 17

   She then explained to members the financial statement (attached). P.Suter (s=S.Brooks) proposed that her report be accepted; carried.

   M.Hart then proposed (s=R.Marchant) that subscriptions to the society from June 1998 be raised to the following levels:

   $50 - ordinary member
   $25 - student
   $450 - 10 year membership
   $1500 - life membership

   This proposal was defeated with 50 voting against it and 14 for.

   R.Marchant proposed (s=P.Humphries) that a $1500 honorarium be paid to the treasurer/membership officer; carried.

   Auditor's report: this was read to the members by the secretary (and is attached). R.Marchant proposed (s=T.Hillman) that this report be accepted; carried.

8. **Editor's report**: no report this year.

9. **Newsletter editor's report**: F.Sheldon thanked all members who contributed to the newsletter over the last year. She noted that more conference reports were needed and would welcome any comments on how the newsletter should proceed given that a web page was now available. Such comments could be made as 'letters to the editor'. She confirmed she would remain editor for another year but advised that a replacement should then be found. R.Marchant proposed (s=K.Muller) that the report be accepted; carried. S.Bunn then proposed (s=K.Muller) a vote of thanks to Fran for her work as newsletter editor and to Mike Douglas for setting up the ASL home page; carried.

10. **Jolly award committee report**: D.Mitchell informed members that no award could be made this year as a unanimous decision on the candidates could not be reached. He and the rest of the committee will send recommendations to the executive about the rules governing the award. He then proposed (s=J.Davis) that: "the new executive be empowered to reach a decision on the mechanisms of the Jolly award". This was carried.

11. **Student award committee report** (given by P.Suter at the annual dinner the next night): The PhD/MSc prize was awarded to Jim Thomson (Monash) and Lisa Evans (U.Canberra); Kim Jenkins, Justin Brookes, Deborah Nias and Adrienne Burns received honourable mentions. The Honours prize was awarded to Ben Gunn (ANU); Neil Sims received an honourable mention. The Poster prize was awarded to Annabel Douglas-Hill (UNE); Janet Smith received an honourable mention.

12. **Student travel award committee report**: R.Marchant announced that awards had been made to two students (Darren Ryder, Edith Cowan U.; Sabaruddi Tjokrokusumo,

Murdoch U.) wanting to give papers at the current congress. Unfortunately, only D. Ryder was able to attend the meeting.

13. **Door prize committee report**: this was given by T.Doeg and a severely edited version will be printed in the newsletter.

14. **37th Congress**: G.Jones proposed that next year's congress be held in Brisbane. This was accepted unanimously.

15. **Future congresses**: no proposals were made and this matter will be dealt with by the new executive.

16. **Election of the executive**: the following were elected unopposed:

President: Max Finlayson
(p= R.Marchant, s=K.Muller)
Secretary: Richard Marchant
(p=M.Finlayson, s=J.Davis)
Treasurer/membership officer: Margaret Hart (p=R.Marchant, s=P.Schultz)
Vice-president: Pierre Horwitz
(p=R.Marchant, s=M.Hart)
WA: David Hamilton
(p=J.Davis, s=J.Chambers)
SA: K.Muller
(p=M.Brock, s=J.Roberts)
Vic - Deb Nias
(p=T.Doeg, s=K.Muller)
Tas - Janet Smith
(p=P.Horwitz, s=A.Boulton)
NSW - Daryl Nielsen
(p=R.Oliver, s=J.Hawking)
ACT - Kim Jenkins
(p=N.Knerr, s=D.Nielsen)
Qld - Gary Jones
(p=S.Bunn, s=B.Pusey)
NT - Ruth O'Connor
(p=S.Townsend, s=N.Knerr)

17. **Election of the auditor**: M.Hart proposed (s=R.Marchant) that the firm of Coster Galgut Pty Ltd be elected as auditors: carried.

18. **Other business**:

a) *CSIRO journals*: Ann Grant (editor of Marine and Freshwater Research, MFR) informed members that within 18 months MFR would become fully commercial and would no longer receive subsidy from CSIRO. Currently two ASL members (P.Boon, S.Bunn) are on the editorial board (P.Boon is the chairman). Following its change of name the journal now considers and publishes papers from outside the Australasian region. There has been no lessening of published material, despite the publication of special issues. The proportion of papers dealing with freshwater or inland water topics has remained steady between 1988 (28%) and 1997 (31%). Some issues of the journal are now available on the internet and an electronic subscription is planned within the next two years.

b) *FASTS*: Peter Cullen (incoming president) summarised the status of this organisation. Currently 37 scientific societies are members. Policy statements on education, university research, research training and industrial research are available on FASTS's web page. The main function of FASTS is to lobby the federal government about scientific matters and to assist member societies to lobby about specific issues.

c) *SIL*: Richard Marchant (SIL national representative) reminded members

that a SIL conference would be held in Melbourne in February 2001 at Monash University. He encouraged more Australian limnologists to join this international society.

Meeting finished at 7.00 pm

ARTICLES

The water rat (*Hydromys chrysogaster*) and water management in the Murray-Darling Basin

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Introduction

The water rat (*Hydromys chrysogaster*) is an amphibious rodent which is native to Australia and New Guinea. It is a placental mammal (not a marsupial) with a body length of about 30cm and a long white tipped tail (Olsen 1995). Among its adaptations for aquatic life are broad, partially webbed hindfeet and water repellent fur. The dense, soft fur has in the past led to its commercial exploitation (Fleay 1964). It is the only amphibious Australian mammal other than the platypus.

Present distribution

The water rat is widely distributed throughout Australia, including some offshore islands, and also occurs in New Guinea (Olsen 1995). In the Murray Darling Basin it is found in permanent water bodies across a wide range of habitats from upland streams along the Great Dividing Range to lowland rivers and wetlands in the west. In other parts of Australia it is also found along some beaches and estuaries.

Changes in abundance and distribution since European settlement.

At first numerous, populations declined in certain areas following its exploitation for fur during the first half of this century. Destruction as vermin in irrigation areas also probably contributed to the decline. Legislation now protects the species and populations have recovered. Swamp reduction and flood mitigation practices have removed some habitat but the construction of permanent wetlands, particularly in irrigation areas, appears to have compensated for these losses.

The overall distribution of the water rat does not seem to have changed much since European settlement. On a national scale, water rats have recently been assessed as 'secure' but with an overall decline in abundance estimated at 10-50% (Lee 1995). Within the Murray-Darling Basin, however, it is still common in areas where there is suitable habitat, such as irrigation areas and permanent wetlands. For instance, during field studies over the period 1969 to 1976 at Lake Cowal in NSW, Vestjens (1977) observed a total of several hundred water rats, and on one day alone, 34 were seen.

Habitat

The water rat usually lives in the vicinity of permanent bodies of fresh or brackish water and even on some marine beaches (Olsen 1995). The highest numbers of water rats are generally seen in irrigation canals, and permanent wetlands but appear to be less common along inland rivers (Olsen 1995). It is also an occasional vagrant to temporary waters (Olsen 1995). Watts and Aslin (1981) suggested that the water rat may be one of the few native mammals to have profited from human activities in some areas. Although it is usually found close to water, the

water rat is able to survive on dry land and may range far from water in search of prey (Woollard *et al.* 1978). Nests are made at the end of tunnels in banks or occasionally in logs (Olsen 1995).

Tolerance to cold water environments

Given that water rats obtain most of their food from the aquatic environment, and that their wide geographical range includes mountain areas, it is surprising to learn that they cannot maintain their body temperature in cold water (Fanning and Dawson 1980, Dawson and Fanning 1981). Water rats can tolerate a water temp of 5 Celcius for between 30-100 minutes without suffering noticeable impairment of activity or metabolic function. However, for periods longer than this, they slowly becomes hypothermic. Observations of behaviour, indicate that when they are feeding and foraging, a considerable amount of time is spent out of the water, on logs and weed clumps and at 'feeding tables' to which the prey is carried for eating (Woollard et al 1978). Gardner and Serena (1995) also observed that they periodically return to their burrows during the night, allowing them to warm up before re-entering the water in search of more food. This explains how the water rat can inhabit regions with low winter temperatures without becoming hypothermic.

Movement and dispersal

The water rat maintains a home range and has no migratory patterns. Gardner and Serena (1995) reported a home range of 3.9 km of river for an adult male fitted with a radio tracking collar. Harris (1978) reported home ranges for three adult males ranging from 0.9-2.2 km of river . Adult males tend to occupy the largest home ranges and they often overlap with the home ranges of one or more females.

Dispersal of young to surrounding waterbodies presumably occurs after each successful breeding season. Dams and weirs would not inhibit the dispersal of water rats since they can move considerable distances across dry land. They are however, more prone to predation while moving around these structures.

The lifecycle of the water rat

Studies undertaken in the ACT (Olsen 1982) indicated that breeding can occur throughout the year, although most litters are born between September and March, with peak activity in early spring. McNally (1960) reported a slightly shorter season of September to January for water rats in irrigation districts of northern Victoria. He also observed that during late summer, autumn, and early winter the female rats were anoestrus. In south-eastern Queensland, Harris (1978) reported a slightly longer breeding season, from August through to the following May; presumably due to the warmer climate. Populations in arid regions probably breed whenever suitable conditions exist, rather than seasonally.

A female may become sexually mature at the age of 4 months and breed in the same season of its birth. Commonly however, breeding does not begin until the following season. Gestation occupies about 34 days (Olsen 1982) and the litter size can range from 1 to 7, with the average size being about three (Olsen 1982, McNally 1960). Apparently one litter per season is normal (McNally 1960) but when food and water are abundant, up to three litters are possible (Williams 1983, McNally 1960). In dry years breeding is irregular and litters are smaller. The female suckles the young for about 4 weeks, after which they remain with her for another 4 weeks, gradually attaining independence (Olsen 1995).

Olsen (1982) observed that females never bred in more than three consecutive breeding seasons even when they survived as many as six seasons. None produced a litter when aged more than about 3.5 years.

Diet and feeding habits

The water rat is unusual among Australian rodents in not being entirely nocturnal. The most active period is for 2 to 3 hours immediately after sunset (Harris 1978, Gardner and Serena 1995) but animals may forage in full daylight (Woollard *et al* 1978, Olsen 1995). Most food is gathered from the water with movements being primarily along the shoreline. The eyesight of the water rat is keen in discerning movement, and the eyes are kept open under water (Woollard *et al* 1978). They will also collect food from the land if it is readily available.

The water rat eats little plant material, being essentially an opportunistic predator on large aquatic insects, fishes, crustaceans and mussels. Frogs, lizards, small mammals, and waterbirds may also be taken (Woollard *et al* 1978). Prey is often carried to a regularly used feeding site (Olsen 1995). Water rats have also been reported to have raided poultry runs (Troughton 1967) and fisherman's nets (McNally 1960, Frith 1973). Fresh carrion, including edible domestic rubbish, dead waterbirds and dead domestic livestock, is also readily eaten (Woollard *et al* 1978).

With the ability to detect and capture a large range of food items, from mosquitoes to ducks, the water rat appears to be an opportunist governed by changing availability and in times of abundance, by preference. Versatility and broad resource utilisation would appear to ideally suit the water rat to the dynamically changing waterways of Australia (Woollard *et al* 1978).

Effects of water regime on the ecology of the water rat

Bankfull flows during irrigation season

Bankfull flows in rivers, for extended periods of time during the irrigation season reduces the availability of sites for burrows during the breeding season. However other nesting sites might still be available further away from the main channel and whether bankfull flows have a significant impact on water rat abundance or not, has yet to be reported in the literature. Another possible impact of bankfull flows would be from the increased water velocity throughout summer which would increase the energetics of food collection as the water rat swims up and down the edges of the river.

Rivers however, are only one type of waterbody occupied by water rats. Large numbers are also found in permanent wetlands, lakes and in irrigation areas. Therefore, while bankfull flows might have negative impacts on some water rat populations, it does not pose a serious threat to the survival of the species as a whole.

Floods and droughts

Although the flooding of rivers or wetlands in spring or summer may lead to some mortality of young in burrows, the water rat is capable of producing a second and possibly even a third litter in the same season. This ability to produce more than one litter per season enables the water rat to tolerate changes in flow better than many other aquatic vertebrates. Although there might be some short term mortality of young, on a long term basis floods are most likely to benefit the water rat since the floodwaters result in an increase in suitable feeding habitat. This is supported by anecdotal reports of increases in abundance in Barmah forest during

major floods in 1975 (Chesterfield *et al.* 1984) and along the Lachlan river during extended wet periods (Roberts and Sainty 1996, 1997).

During extended droughts, many wetlands and waterholes dry up and this might lead to a temporary decline in the water rat population. However, when conditions improve, water rats in the more permanent water bodies can rapidly breed and the dispersal of the young allows these areas to be re-inhabited.

Minimum flows in rivers

Water rats do not require the flow in a river to be maintained above some minimum value. Even if the river ceases to flow, they can move across land to gain access to upstream or downstream pools (although there might be slightly higher mortality due to predation).

Permanent inundation of wetlands

In some areas of the Murray-Darling Basin, temporary wetlands have been used for storing water for irrigation purposes and are now permanently inundated. This tends to favour the water rat, as shown by the high numbers present in Barren Box Swamp in the Murrumbidgee Irrigation Area (Woollard *et al* 1978).

Effect of cold water releases from storages

Releases from lower levels of water storages can result in depressed water temperatures downstream. Since the water rat cannot maintain its body temperature in cold water, cold water releases would reduce the amount of time it could hunt for food instream. The release of cold water might also have indirect effects on the water rat's food supply by altering the abundance or composition of aquatic invertebrates. However, the water rat is known to be a readily adaptable animal and it could probably change its feeding patterns to compensate for any negative impacts. No studies addressing this topic have yet been published.

Effect of water quality

Pesticides, heavy metals and other pollutants can reduce or kill populations of invertebrates which are food items for the water rat. Water rats however, are found in irrigation drainage channels which can often have high nutrient levels and can also contain low levels of pesticide residues. The ability to survive in such an environment is an example of the adaptability and opportunism of water rats. If certain food items, such as crustaceans or mussels are unavailable due to the poor water quality, the water rat can switch to other food items such as fish (including exotics such as carp), lizards, waterbirds or even domestic rubbish. However, at very high pollution levels, the water rats themselves may be poisoned.

High salinity levels are clearly not a problem for the water rat since it not only occurs in freshwater habitats but is also found in brackish and marine habitats.

Perhaps one of the more important parameters is the turbidity of the water. The water rat hunts under water with its eyes open (Woollard *et al.* 1978) and high turbidity might make food collection more difficult than it would be in clear water. Nothing has yet been published on this issue.

The effect of water quality on the health of the water rat is an issue that needs to be investigated.

Other factors that might affect water rat populations

Exotic species - carp

Since carp are benthic feeders whereas water rats hunt for food across a wide range of habitats, there is probably little competition for food. In fact the water rat might have benefited from the large increase in carp numbers since small fish form an important part of their diet. Chesterfield et al (1984) provided anecdotal evidence of water rats feeding on large numbers of carp in Barmah forest during a major flood in 1975.

Predators

Snakes and various birds of prey are the natural predators of water rats (McNally 1960), however feral cats and foxes also feed upon them (Williams 1983, Olsen 1983). The impact of these introduced predators is not known.

Extermination

The water rat was regarded by some as a pest of inland fisheries and its burrows were said to cause damage to irrigation structures (McNally 1960). However, even greater damage would be caused by burrowing freshwater crayfish if water rats were not present to prey upon these animals (Olsen 1983). Extermination of water rats as vermin contributed to the initial decline of water rats earlier this century. However, legislation now protects the species and populations have recovered.

Although Vestjens (1977) reported water rats drowning in fish nets, it is likely that this problem has declined since the commercial inland fishing industry is now quite small. Restrictions on the mesh size of nets has also reduced (but not eliminated) the chance of water rats being caught. The impact of recreational fishing and illegal nets is not known and would be difficult to determine.

Further research

There is still very little ecological information on the water rat and there is good justification for setting up some long term monitoring studies within the Murray-Darling Basin. This would improve our knowledge on habitat requirements, movement and dispersal, diet, and lifecycle. Such monitoring would also help detect any long term changes in their abundance, or threats to their survival.

Concluding remarks

The water rat is an opportunistic and highly adaptable species, capable of occupying a wide range of habitats from small inland waterways to swamps and lakes and coastal estuarine waters. Within the Murray-Darling Basin it is common in areas where there is suitable habitat, and appears to have benefited from the increase in permanent waterbodies associated with irrigation areas. It is an opportunistic predator and will consume a wide range of foods including crustaceans, fish, large insects, frogs and even domestic garbage or carrion. Throughout most of its distribution, breeding is on a seasonal basis and does not appear to be triggered by any change in water regime such as flow rate or water depth. In arid areas however, where the amount of suitable habitat declines during dry periods, breeding might be delayed until sufficient water (and hence food) are available.

Although flooding might temporarily drown out their burrows, water rats appear to benefit from floods since the floodwaters result in an increase in suitable feeding habitat. During droughts, many wetlands and waterholes dry up and this leads to a temporary decline in the

water rat population. However when conditions improve, water rats in the more permanent water bodies can rapidly breed and the dispersal of young will allow these areas to be re-inhabited.

The adaptability of the water rat to conditions in a wide range of habitats and the high level of transience are of primary significance in ensuring the survival of the species.

Acknowledgements

I would like to thank Tom Grant, Melody Serena and Bill Young for reviewing this paper, and Jane Roberts, and Angela Arthington for providing extra information.

References

Chesterfield E.A., Loyn R.H. and Macfarlane M.A. (1984) Flora and fauna of Barmah State Forest and their management. Biological Survey Branch, Forests Commission Victoria, Research Branch Report 240, 73pp+App. (unpubl.)

Dawson T.J. and Fanning F.D. (1981) Thermal and energetic problems of semiaquatic mammals: a study of the Australian water rat, including comparisons with the platypus. *Physiological Zoology* **54**: 285-296

Fanning F.D. and Dawson T.J. (1980) Body temperature variability in the Australian water rat, *Hydromys chrysogaster*, in air and in water. *Australian Journal of Zoology* **28**: 229-238.

Fleay D. (1964) The rat that mastered the waterways. *Wildl. Aust.* **1**(4): 3-7.

Frith H.J. (1973) Wildlife conservation. Angus & Robertson, Sydney.

Gardner J.L. and Serena M. (1995) Observations on activity patterns, population and den characteristics of the water rat *Hydromys chrysogaster* along Badger Creek, Victoria. *Australian Mammalogy* **18**: 71-75.

Harris W.F. (1978) An ecological study of the Australian water-rat (*Hydromys chrysogaster*: Geoffroy) in southeast Queensland. Masters thesis, University of Queensland.

Lee A.K. (1995) The action plan for Australian rodents. Australian Nature Conservation Agency, Canberra. 62pp.

McNally J. (1960) The biology of the water rat, *Hydromys chrysogaster* Geoffrey (Muridae: Hydromyinae) in Victoria. *Aust. J. Zool.* **8**: 170-180.

Olsen P.D. (1982) Reproductive biology and development of the water rat, *Hydromys chrysogaster*, in captivity. *Aust. Wildl. Res.* **9**: 39-53

Olsen P.D. (1983) Water-rat. In 'The Australian Museum complete book of Australian mammals', (ed) R Strahan, Angus and Robertson Publishers, 367-368.

Olsen P.D. (1995) Water-rat, *Hydromys chrysogaster*. In 'The mammals of Australia'. (ed.) R Strahan. Reed Books, Chatswood, 628-629.

Roberts J. and Sainty G. (1996) Listening to the Lachlan. Sainty & Associates P/L, Sydney.

Roberts J. and Sainty G. (1997) Oral history as a tool in historical ecology: Lachlan river as a case study. CSIRO Land & Water Consultancy Report 97-20, June 1997.

Troughton E. (1967) Furred animals of Australia. Angus & Robertson, Sydney.

Vestjens W.J.M. (1977) Status, habitats and food of vertebrates at Lake Cowal. CSIRO Division of Wildlife Research Technical Memorandum No. 12.

Watts C.H.S. and Aslin H.J. (1981) The rodents of Australia. Angus and Robertson, Sydney.

Williams W.D. (1983) Life in inland waters. Blackwell Scientific Publications, Melbourne. 114-117

Woollard P., Vestjens W.J.M. & MacLean L. (1978) The ecology of the eastern water rat *Hydromys chrysogaster* at Griffith, NSW: food and feeding habits. *Aust. Wildl. Res.* **5**: 59-73.

TROPICAL WETLAND MANAGEMENT COURSE HELD AT ERISS, NORTHERN TERRITORY, AUSTRALIA.

The Environmental Research Institute of the Supervising Scientist (ERISS) is located in Jabiru, within northern Australia's Kakadu National Park. Upon request from the Northern Territory University (NTU), ERISS recently conducted a Tropical Wetland Management course.

The course is an initiative of the Centre for Tropical Wetlands Management, to be part of the NTU Masters of Tropical Environmental Management. It is coordinated by the ERISS Wetland Protection and Management research program, with support from NTU and interested external collaborators.

The goal of the course is to transfer information to assist wetland managers and/or policy makers to develop skills and understanding about wetland processes, surveys and threats.

Course content includes:

- Types and major features of wetlands, including functions and values
- Major issues facing tropical wetlands
- Inventory and classification of wetlands
- Ecological character of wetlands
- Ecological survey design and sampling techniques
- Ecological risk assessment and toxicology
- Development of a monitoring program
- Wetland management planning, sectoral issues, community involvement
- Management planning for the coastal zone
- Wetland management grant applications

The course was held over 2 weeks (7-18 July, 1997) and involved 11 students from NTU. They stayed in ERISS accommodation in Jabiru and transport, library and computer access were provided.

The course structure involved lecture sessions in the ERISS conference room, and field excursions into Kakadu National Park. The students visited various wetlands in escarpment, floodplain and riverine environments, and the wetland filter at Ranger Uranium Mine, to gain greater understanding of the diversity of wetlands, sampling and inventory techniques, and tropical wetland management issues. A special public lecture session was held at Warradjan Cultural Centre. A number of guest speakers from other agencies participated in the course, all with considerable expertise and diverse backgrounds.

The Tropical Wetland Management course may be repeated on an annual basis as part of the NTU Masters in Tropical Environmental Management. The format of the course is being reviewed. It may also be offered as a stand-alone certificate course in future.

The information base from the course will be collated over the next few months and published by ERISS as a Supervising Scientist Report. This will be available to all interested persons or organisations; we will notify these mailing lists when it is available and when orders can be submitted.

For further information contact Dr Max Finlayson (maxf@eriss.erin.gov.au) or Ms Abbie Spiers (abbies@eriss.erin.gov.au) at ERISS: Tel: +61-8-89799711, Fax: +61-8-89792076

THE BLUE-GREEN ALGAE MULTI-DIVISIONAL PROGRAM CSIRO LAND AND WATER

CSIRO scientists have made major advances in their understanding of how blooms of poisonous blue-green algae occur in rivers. This has led to the development of preventative methods available to river managers.

In November 1991, a 1000 km bloom of toxic blue-green algae developed along the Darling River in western NSW. One of the world's longest river algal blooms, it received widespread international publicity and captured public attention in Australia for many weeks.

Blue-green algae can produce toxins which are many times more poisonous than cyanide. Animals have died and humans have been poisoned. They can cause the death of large numbers of fish, create unpleasant odours, increase water treatment costs and have caused millions of dollars to be lost by tourist and agricultural industries.

Blue-green algal blooms are a national problem, not confined to the Darling River. They occur in rivers, estuaries, reservoirs and farm dams throughout Australia. The eastern State governments and the Murray-Darling Basin Commission (MDBC) set up task forces into the problem after the 1991 outbreak. Whilst an immediate response was based mainly on information derived from the northern hemisphere, all parties stated that they needed a better understanding of the causes of blooms in Australian environments to develop effective management actions.

In 1992, CSIRO announced an injection of $1.5m of new money and the redirection of $1.5m of existing research into a priority research program to understand the causes of algal blooms and to seek solutions for managers. Staff were drawn from across CSIRO to bring together computer modelling, remote sensing, chemistry, hydrology and ecology expertise.

The research topics were worked out in close collaboration with the State agencies faced with managing the problem. Representatives from all mainland states, the MDBC, and the Land and Water Research and Development Corporation all assisted. Six projects were agreed. Some covered the causes of blooms in rivers (such as the Darling), in estuaries (such as the Swan), and in water storages (such as in south-east Queensland). Other projects aimed to develop technologies to detect the early onset of bloom conditions. All addressed the needs of managers.

For example, it was found that blooms in water behind the weirs of the Murray-Darling Basin are not controlled by excess nutrients - as previously thought - but by the changes in flow brought about by development. Inland rivers are now impounded behind weirs and flow intermittently during summer as irrigation industries draw water away from the streams. These changes from natural flow patterns have created standing pools of temperature-stratified water. Blue-green algae are buoyant and so can float to the top under these conditions to obtain light and, if left alone long enough, grow to bloom proportions. This finding has led to new methods for managing these

types of blooms in Australian rivers. Essentially we need to periodically break the stratified conditions, to prevent the blooms forming. This can be done by increasing the flow through river weir pools, discharging water in pulses through weir pools, or siphoning water over weir walls.

These and other results of the three year study have been summarised in the book "Managing Australia's Algal Blooms", now available from CSIRO Land and Water (Phone: +61 6 246 5717, Fax: +61 6 246 5800). The first lesson to be drawn from the findings is that we cannot always just use results from the northern hemisphere. It has shown convincingly that there are different causes for the blooms that occur in different types of waterbody. It has shown that, in many cases, our waterbodies are different to those in the northern hemisphere and that our management responses need to be different. Overall, in just a few years the program has greatly increased our understanding of Australian algal blooms.

It has also offered managers more options for controlling blooms than they had in 1992. Unfortunately, it has also confirmed that it will take many years of effort to overcome some of the unwanted effects of earlier development.

Another lesson to be drawn from these results is that the key to success in such programs lies in the close collaboration - not just at the beginning but throughout the research - between researchers and managers. This collaboration not only leads to the choice of the most important topics, but it produces the most effective research, and it leads to rapid uptake of the results.

Richard Davis, CSIRO Land and Water

ANNOUNCEMENTS

World-class science chief appointed

An eminent ecologist, freshwater and marine biologist, Dr Graham Harris, has been appointed as Chief of CSIRO Land and Water, the new Division formed from the amalgamation of the previous Division of Soils, Division of Water Resources, and the Centre for Environmental Mechanics.

Dr Harris has an international reputation for work in aquatic and terrestrial ecology, freshwater biology, pollution monitoring, biological oceanography, and remote sensing, publishing more than a 100 papers and four books. He has also done leading work in fisheries dynamics and the effects of climate variability.

Dr Harris was previously Head of CSIRO's Environmental Projects Office, supplying interdisciplinary scientific expertise in environmental monitoring throughout the Asia–Pacific region and has set up CSIRO programs in biological and chemical oceanography and remote sensing.

Dr Harris was leader of CSIRO's widely acclaimed Port Phillip Bay Environmental Study, which has since prompted similar in-depth studies in Sydney and Indonesia.

He was also the leader of CSIRO's Coastal Zone Program and involved in its Blue-Green Algae Research Program, and has been an Adjunct Professor at the University of Canberra.

He has been Director of the CSIRO Office of Space Science Applications (COSSA) where he acted as a focal point for space science and remote sensing within CSIRO, and representing the Organisation nationally and internationally in this sphere.

Dr Harris says Australia is superbly placed to become a world leader in land and water science at a crucial period in human history.

"At a time when there is unprecedented human pressure on the earth's land and water systems, Australia has had the vision to create one of the most powerful scientific bodies to tackle the problems of our degrading resources," he says.

"CSIRO Land and Water is one of the largest and scientifically best-qualified research agencies in this field in the world, and we will be tackling issues central to the future prosperity of Australia, its communities and industries — issues such as salinity, acid soils, erosion, loss of fertility, pollution, and declining water quality."

Dr Harris joined CSIRO in 1984 and set up a new research program in biological oceanography in the Division of Fisheries. He went on to lead other research programs in chemical oceanography and remote sensing, working on coastal dynamics, structure of pelagic food chains, and the effects of inter-annual variability on commercial fisheries.

He became Director of COSSA in 1989 and later became manager of the Environmental Projects Office, where he won the CSIRO Chairman's Medal (in 1966) for conduct of the Port Phillip Bay Study.

Dr Harris thinks that currently there are real opportunities for CSIRO to hasten the growth of Australia's burgeoning environmental export sector, providing knowledge and advice for overseas customers struggling to cope with problems of pollution and degradation caused by rapid development.

"Urban water will be a key focus for the new CSIRO Land and Water, but we also have a major role to play in helping increase the productivity of agriculture and rural industries through a new National Irrigation Centre based at Griffith, NSW," he said.

Dr Harris was born in the UK and graduated from Imperial College, London, in Botany. He joined CSIRO after a distinguished career as a biology professor in Canada.

An Explanation

You might have seen an article I wrote on *Limnology Down Under* on page 35 of the March 1997 issue of the Newsletter (Volume 35, Number 1). I guess that a word of explanation is due here. The article has been sent to the editors of newsletters of various limnological and aquatic societies and journals in the USA and Europe, in order to increase the profile of both the ASL and the journal, *Marine and Freshwater Research*. If we can increase the profile of the Society and the journal, we may benefit from increased memberships and subscriptions. Let's hope that it works.

Paul I Boon

Attention Sample Sorters!

New Version – Free Evaluation

Counter is a program I developed to use a computer as a multi-element laboratory counter for counting invertebrates, algae, cells, etc from collected samples. Counter enables you to process the samples and then export the data matrix directly into a spreadsheet or statistical program. This saves valuable processing time by eliminating the requirement for typing in of large data sets and also eliminates data transcription errors.

You can download a **FREE EVALUATION** edition of Counter from the web page.

http://www.sci.monash.edu.au/deeb/counter

Full details and documentation are on the web page.

If you do not have WWW access, then send me an email with the subject "COUNTER EVALUATION", and you will be sent the free evaluation program as an email attachment.

All proceeds from **Counter** assist my current research into the impacts of disturbance in stream ecosystems.

All registered users get LIFETIME FREE technical support and updates when/if they become available.

Shane Brooks
Co-operative Research Centre for Freshwater Ecology
Monash University
Shane.Brooks@sci.monash.edu.au

1998 AQUATIC ECOLOGY POSTGRADUATE WORKSHOP

This annual workshop is essential for any postgraduates studying in the field of aquatic ecology, whether marine or freshwater. It provides an important opportunity to meet other postgrads, and to discuss your work in a relaxed and informal environment. The workshop consists of short oral presentations by attendants, and invited guest speakers discussing topics relevant to postgraduate research. An opportunity not to be missed.

when: 16-18 March 1998
where: Queenscliff, Victoria (near Melbourne)
cost: ~ $85

contact for registration information:

email aepgw@unimelb.edu.au

or contact

Mike Holloway
Dept. of Zoology, University of Melbourne, Parkville, 3052, VIC
Ph: (03)9344 4334
(03)9344 7909

For more details, including abstracts from last years conference, see URL:
http://www.arts.unimelb.edu.au/Dept/Geography/aepgw/aepgwhome.html

UNIVERSITY OF ADELAIDE
POSTGRADUATE AWARD (INDUSTRY)
Department of Zoology

Applications are invited for the following scholarship leading to the degree of Doctor of Philosophy in the Faculty of Science. The scholarship is supported by The University of Adelaide and Hamilton Laboratories.

Field of study: Identification and development of insect repellents in the skin secretions of Australian frogs.

Eligibility: Applicants must be Australian citizens or permanent residents of Australia who are acceptable as candidates for a postgraduate research degree at The University of Adelaide and should hold a good honours degree or equivalent in a relevant discipline.

A Zoology major and a good knowledge of chemistry (second or third year university chem) would be an advantage.

The scholarship will be for a period of three years and has a stipend of $19827 per annum. It is likely to be tax exempt, subject to Taxation Office approval.

Enquiries to: Associate Professor Michael Tyler,
Fax (08) 8303 4364,
Email mtyler@zoology.adelaide.edu.au

Application forms are available from the Scholarships Officer, The University of Adelaide, Australia 5005, or telephone (08) 8303 3044.
Please include a curriculum vitae with your application.

Taxonomy Workshop

Mites, Polycentropids, Glossosomatids, Dipseudopsids & Psychomyiids,
Psephenids Dytiscids Hydrophilids (Coleoptera),
Calocids, Helicophids & Conoesucids (Trichoptera)

Tenth Taxonomy Workshop Program
10-12 February, 1998

TUESDAY 10th FEBRUARY 1998

9.00-9.15 Welcome" **Prof Peter Cullen**, Director CRCFE

9.15-5.00 **Mark Harvey & Jane Growns** - Australian Water Mites

7.30pm Evening Barbeque at MDFRC

WEDNESDAY 11th FEBRUARY 1998

9.00-10.45 **David Cartwright** - Polycentropids, Glossosomatids, Dipseudopsids & Psychomyiids

11.15-1.00 **Jenny Davis** - Psephenids (Coleoptera)

2.00-5.30 **Jean Jackson** - Calocids, Helicophids & Conoesucids (Trichoptera)

7.30pm Dinner, Thai Lotus Restaurant, 610 Dean St, Albury

THURSDAY 12th FEBRUARY 1998

9.00-12.30 **Chris Watts** - Revision of Dytiscids (Coleoptera)

1.30-5.00 **Chris Watts** - Revision of Hydrophilids (Coleoptera)

CONFERENCE ENQUIRIES :

Rosie Busuttil, Diane Crowther, John Hawking at MDFRC, PO Box 921, ALBURY NSW 2640 Phone : 02-6058 2300 or Fax : 02-6043 1626

VENUE :

The Murray Darling Freshwater Research Centre, Ellis Street Thurgoona NSW 2640

Registration Form

- Tenth Taxonomic Workshop -

Registration : Participants must register and include fee by **Friday 5 December 1997.** Please make cheques payable to **The Murray Darling Freshwater Research Centre.**

Name :_____

Institution:_____

Postal Address_____

_____

State:_____ **Post Code:**_____

Email:_____

Phone:_____ **Fax:**_____

REGISTRATION COSTS

Ordinary Participants		Full Time Students	
All 3 Days $200		All 3 Days $ 160	
Day 1 only $70		Day 1 only $55	
Day 2 only $85		Day 2 only $75	
Day 3 only $70		Day 3 only $55	
Evening BBQ $15		Evening BBQ $15	

Vegetarians please tick ☐

TOTAL		TOTAL	

WORLDWIDE DRAGONFLY ASSOCIATION

The WORLDWIDE DRAGONFLY ASSOCIATION is a new organization set up on 6 Sept 1997 as a UK-based charity. Its objects are "to advance public education and awareness by the promotion of the study and conservation of dragonflies (Odonata) in their natural habitats in all parts of the world".

Limnologists with an interest in dragonflies might like to consider joining this new venture, and writing for its new scientific journal, PANTALA; the Journal of the Worldwide Dragonfly Society.

Membership is relatively cheap, UKpounds 20 for individuals, 30 for a family, 15 for students for a full year, with half-fees for the remaining portion of 1997. Further details from the Secretary ,Jill Silsby, 1 Haydn Ave., Purley, Surrey CR8 4AG, UK (Jsilsby1@aol.com).

The cost of the journal Pantala will depend on how many subscribe. So far, it has been determined there will be no page charges, and the first issue is in preparation. Further details from the editor, Henri Dumont, Univ: Gent, Ledegankstraat 35, 9000 Gent, Belgium. (Henri.Dumont@rug.ac.be).

Local contact:
John Trueman, RSBS, ANU, Canberra ACT 0200
(trueman@rsbs.anu.edu.au) can provide a copy of the Constitution, etc, and a few further details about the proposed activities of WDA.

WATER REFORMS ON THE INTERNET

The New South Wales Department of Land and Water Conservation (DLWC) released an Internet web site on Monday September 1, to provide information to DLWC staff and the community regarding the water reforms.

The DLWC home page address is: http://www.dlwc.nsw.gov.au/

The water reforms address is: http://www.dlwc.nsw.gov.au/reform

There is also a 1800 number for the water reforms: 1 800 638 996

If you have any further questions regarding disseminating information on the water reforms contact the Information Centre, or Communications Branch on (02) 9228 6415.

If you have any questions regarding the Internet please contact myself on (02) 9895 7073, or send me an e-mail.

Yours in reforms,
Sarah Meehan

NEWS FROM FASTS

fasts@anu.edu.au
http://www.usyd.edu.au/su/fasts/

FASTS CIRCULAR FOR JULY,

1. MORTIMER REVIEW: The future of the Cooperative Research Centres is looking less rosy. The financial screws have been turned a little tighter, with a three per cent efficiency dividend being applied from 1997-98, and a reduction of funding foreshadowed in the Budget's Forward Estimates.

Now the Mortimer Review has emerged. The CRC Program, which has been internationally admired as a model for bringing research and industry together, comes in for harsh judgement.

Mortimer recommends a cut in the overall budget for the CRC program from $146 million in the 1997-98 budget, to a maximum of $20 million. This funding would be restricted to the "public Good" CRCs, with all other CRCs being regarded as delivering a "private benefit".

His Review has been greeted by general applause of the business community, and FASTS joins them in supporting recommendations which set the right climate for growth. Clear systems to encourage a whole-of-Government program to support industrial development and investment are admirable objectives.

But his recommendations on basic research and ecologically sustainable development are not backed by argument or analysis to justify the recommendations.

He goes on to set unjustified target earnings from external sources for researchers like CSIRO (50 per cent), and the Australian Institute of Marine Science (AIMS) and the Australian Nuclear Science and Technology Organisation (ANSTO) (both 37 per cent), and the universities (50 per cent increase by 2005).

The net effect would be to diminish the fundamental and strategic research efforts of our national research institutions, in the quest to lift external earnings.

In ten years the intellectual capital of bodies like CSIRO could well be exhausted.

The recommendation to wind up the Rural Industries R&D Corporation (RIRDC) and the Land and Water Corporations (including LWRRDC), and those on the sustainable management of natural resources are similarly flawed.

In the recommendations on R&D, the Review's thinking leaves no room for direct Government funding for capacity building. There is little long-term vision in such an approach, and FASTS cannot stand by and watch any wholesale dismantling of the public research effort.

The Mortimer Review is available on the web at www.dist.gov.au/events/Mortimer/index.html (or through the "Going for Growth" button on the DIST home page) or in hard copy from Government bookshops.

I have specifically sought involvement of Presidents of Member Societies in preparing a response to the Mortimer Review.

2. THE STOCKER REPORT: FASTS is urging the Government to adopt some of the less contentious aspects of the Stocker Review immediately. A considered response to the Review is in the final stages of preparation, and a meeting has been arranged with Minister Peter McGauran on 26 August.

3. NEW MEMBER: I am delighted to announce that FASTS has a second Affiliate Member, the Scientific Suppliers Association of Australia. The SSAA represents companies supplying research and industry with instruments and

materials, and its 100 plus members have a gross turnover approaching $1 billion annually.

FASTS welcomes the opportunity to strengthen our connections with industry. This will increase our capacity to advise Government on S&T issues across the board.

4. STATE S&T POLICIES: State Governments are becoming more aware of the role S&T can play in wealth creation and solving environmental problems. Victoria has joined WA in announcing an S&T policy, and other states are showing similar interest.

The States are showing the Commonwealth Government the way. Despite criticism from industry, business and S&T groups, the Commonwealth has been resistant to the idea of establishing a national vision, and setting out a clear role for S&T in helping realise this vision.

Perhaps the combined weight of advice from the community and commissioned reports from Mortimer, Stocker, and the impending Goldsworthy Review of IT will persuade the Government to act more decisively in this area.

5. SCIENCE CAREERS PROCEEDINGS: The Proceedings of the Forum on Science Careers have now been launched by Minister Peter McGauran in Canberra and Melbourne. President-elect Peter Cullen represented FASTS in Canberra, and Board Member Jan Thomas in Melbourne.

The Minister addressed groups of young scientists in both centres, and said that he "open to any suggestions" which might solve the problems young scientists find when they seek careers in research.

For those with suggestions on careers, the Minister's fax number is 06-273 4150.

6. PMSEC DEC 10: The Prime Minister is likely to address the issue of marine science at the next meeting of his Science and Engineering Council, tentatively scheduled for 10 December from 9 am to 2 pm.

The Prime Minister has shown a strong commitment to PMSEC. While it provides a valuable occasion for Cabinet Ministers to meet with leading figures from S&T, the reforms suggested in the Stocker Report add value to a day which is important to the science community.

7. ASSISTING MEMBER SOCIETIES: FASTS can help Members lift their public profile. Toss Gascoigne worked with the Australian Marine Sciences Association to help them launch "Towards a National Marine Science Policy".

This involved helping arrange meetings with Ministers, preparation of a media release, organisation of media event, and liaison with the Australian Geosciences Council.

8 NEW POLICY DOCUMENT: FASTS Council on November 20 will concentrate on revising the Policy Document and drawing up the list of Ten Top Priority issues for 1998.

These will be particularly important in terms of the political cycle, with a pre-election Budget due in mid-May 1998. Agenda papers for Council are about to be mailed out, and Members should consider their input into these policy matters.

FASTS CIRCULAR FOR AUGUST

1. MEETING WITH MINISTER: Toss Gascoigne and I met with S&T Minister Peter McGauran last week, to discuss the FASTS' response to the recent Stocker Review and Mortimer Report.

The Minister said that the Mortimer Report will not be considered by Cabinet until mid to late October. He hopes to weave consideration of the Stocker Review

in with the Government's response to Mortimer.

A large part of the conversation centred on the position of the CRCs.

The Minister made the point that all the reports and inquiries commissioned by this Government into the CRC Program were an appropriate and normal examination of a program established by the previous administration.

He said he was pleased that there was to be a further review of the CRCs (an examination of their commercial aspects). It will be by an inter-departmental committee (IDC) of DIST and the Department of Finance.

The IDC's terms of reference are the scope for increased commercialisation and self-funding within CRCs, and will be published very soon (when DIST and Finance agree on the details). Submissions will be by invitation, with a closing date of October 20.

The IDC review will effectively take the CRCs out of the Government's consideration of the Mortimer Report. Their future would instead be determined early in 1998, in the context of a pre-election Budget.

The Minister advised CRCs to go about their business quietly and to stop lobbying, and expressed quiet confidence in their future.

I am not sure that I share Minister McGauran's optimism.

The CRCs are in an interesting position. If they are supported too stridently by their industry partners, the economic rationalists in Finance and Treasury will say: if industry finds this such a valuable program, then they won't mind funding it.

And Government is naturally suspicious of any research organisation expressing confidence in one of its programs. That's a sign the program is being too generous.

One key message for the CRCs to get across to Government is that the research and commercial linkages would not have happened unless the CRC program had brought the partners together.

The Program has to act as a bridge to link groups which have traditionally found it difficult to get together - industry, universities, and Government R&D agencies. Another very positive aspect is the involvement of community leaders in CRC boards.

The Stocker Review has also just been referred to an IDC, to report by the end of September, and the Minister expects to begin discussing implementation with his colleagues from early October.

It will be an interesting (and uneasy) period for CRC Directors, and one in which they may feel less than relaxed and comfortable. My strong recommendation is that CRCs should aim to place 'good news stories' on CRC outcomes with all media outlets in the next three to four months.

2. THE STOCKER REVIEW: FASTS has formally advised the Minister of its broad support of the major recommendations, and has urged the Government to adopt some of the less contentious items immediately.

Our support covers:

- a closer interaction between PMSEC, ASTEC and the CCST
- access to a specific Cabinet Committee
- the concept of Deputy-Secretary level appointments of Chief Science Advisers in all the science and technology-dependant portfolios
- the greater recognition of involvement of States and Territories; and
- the strategic role of PMSEC in defining the roles and needs for science and technology in meeting national objectives.

3. THE MORTIMER REPORT: In our formal response to this Report, FASTS is sharply critical of the recommendations relating to public research institutions such as CSIRO, AIMS, ANSTO, the

Universities, the CRCs, and to sustainable natural resource management.

I believe that Mortimer's arguments were not supported by evidence, and that his assessment was shallow and ill-informed. I have since written to David Mortimer, asking him to explain the basis of his reasoning.

4. MEETING WITH JOHN STOCKER: Toss Gascoigne and I met with John Stocker on Tuesday 19 August to discuss the progress of his Review, the Mortimer Report, and likely topics for PMSEC in December.

Stocker is leaning towards the view that PMSEC should concentrate on the job-creating capacity of S&T as a major topic in December 1997, with progress towards a Marine S&T Plan a second topic in December, or as a focus for a later meeting when the Plan is more advanced.

5. PROPOSED NEW SCIENCE FORUM: President-elect Peter Cullen and Toss Gascoigne have been participating informally in an advisory committee developing the idea of a new Science Forum, aiming to bring the best of Australian science to the public. FASTS has not yet debated any specific proposal on this specific topic.

Australian Science Communicators and ANZAAS are working as the prime movers in this exercise, and they expect to be inviting all major science bodies (including FASTS) to join the organising group.

In the meantime, ASC and ANZAAS have agreed to work together to organise the ANZAAS Congress in Hobart in Sept 1998, and a pilot Science Forum (as advocated by ASC) in Science Week 1998. The aim is to roll ANZAAS and the Forum into one event in 1999.

6. FIFTY MEMBERS: With the Australian Society for Parasitology joining FASTS last month, we celebrate our 50th Member. This is a cause for celebration, but we need to extend our coverage as widely as possible to validate our claim that we represent the working scientists and technologists of Australia.

I am writing to a range of Societies and other organisations to invite them to become Members.

The Prime Minister and other Ministers may recently have shown an increasing awareness of S&T, but the Government has only a glimmer of an understanding of the potential value scientists and technologists to Australia. FASTS cannot relax in any false assumption or sense of security that the job is done.

In fact we must be more active than ever in the lead-up to the 1998 pre-election Budget.

7. COUNCIL NOVEMBER 20: Council this year will consider a revised Policy Document, and Members are invited to forward changes or additions they would like included in the draft to be discussed at Council.

My aim is to get a near-final draft document to hand to incoming President Peter Cullen by the end of Council, for him to launch early in the new year. This is when the Government will be considering its pre-election Budget, an excellent time to remind them of the value of funding S&T institutions appropriately.

Member Society are entitled to send one representative (and observers) to Council, and are reminded to complete the acceptance form recently sent out by registered post.

8. CHEMISTRY CONFERENCE: I was delighted to see that the RACI will host the 38th Scientific Congress and 41st General Assembly of the International Union of Pure and Applied Chemistry (IUPAC) in 2001.

Professor Peter Andrews, Chair of the IUPAC 2001 bid, said that the decision to

hold these meetings in Australia demonstrates the tremendous esteem in which Australian chemistry is held internationally, and is a clear signal to Australian governments and Australian industry that we have all of the chemical strengths needed to develop the new high technology export-oriented industries on which our future prosperity will depend.

FASTS CIRCULAR FOR SEPTEMBER

1 NEW MINISTER: The modification of John Moore's ministerial responsibilities to directly include science, technology and industry offers some interesting possibilities for the science and technology community.

It gives science and technology a direct voice in Cabinet discussions, a position FASTS has long advocated and specifically recommended to Mr Howard in 1996.

Our view is that S&T are pivotal to a number of the biggest portfolios, such as Education, Environment, Primary Industry, and Telecommunications; and that only a strong direct advocate in the Cabinet room will enable Australia to gain full benefit from the work of its scientists and technologists.

The arrangement should also strengthen the connection between science and technology, and industry. This has been the weak link in Australia - we have many clever ideas, but the role of industry in developing them and bringing them to the benefit of the community has been significantly below standards reached by comparable nations.

The portfolio has been renamed, from Industry Science and Tourism, to Industry Science and Technology. This seems a much more logical arrangement by any measure.

The downside is that we have lost an enthusiastic and accessible Minister in Peter McGauran, at a crucial time for science and technology and for its interface with industry.

His departure threatened to set back the process of developing new and better policies in science, technology and industry, and consideration of several major reports, including the Mortimer Report, the Stocker Review, and the Goldsworthy Report.

Minister McGauran had also been a strong supporter of the Marine Science and Technology Plan, and it will be important to maintain the momentum of this initiative.

By selecting Minister Moore to fill the gap, the Government has found a neat solution to the changeover problem as well as boosting the presence of science and technology in major Cabinet discussions.

It remains now to be seen how responsive the Minister is to the policies and ideas formulated by grassroots scientists and technologists.

We hope to be able to address him directly on issues of interest to members at the FASTS' Council meeting in November, as well as meeting with him before that date.

2. CRC INQUIRY: DIST has invited FASTS to make a submission to the inquiry being conducted jointly by DIST and the Department of Finance.

The review will make recommendations on ways the CRCs and the CRC Program can be refocussed to become stronger commercial entities, by attracting private sector financing and reducing the call on public sector funding.

Submissions have to be lodged by 31 October, and the review is scheduled to be delivered to Government by 30 December. Peter Cullen is a logical leader to draft the FASTS' submission.

We would welcome ideas from Member Societies. Please send them to the FASTS office: fasts@anu.edu.au.

This fits the Budget timetable, and it seems that the future of the CRC Program will be dertermined in the Budget to be brought down on May 12 next year. This means that decisions will be made in November-December this year.

3. FASTS MEETS DAVID MORTIMER: While I was in Italy, President-elect Peter Cullen and Past-President Graham Johnston met David Mortimer to discuss FASTS concerns about his report "Going for Growth".

FASTS' support for trying to increase growth in the Australian economy, and simplifying and focussing assistance to Business was reiterated; as were our concerns about his recommendations on the CRC Program, the R&D Corporations, and external earnings targets for CSIRO, AIMS, ANSTO, and Universities.

4. FASTS' POLICY UNDER REVISION: A revised version of our 20 page Policy Document is set to be released early in the new year, in time to influence Budget deliberations.

The current document was launched shortly after the current Government came to power, and many things have changed in that period. It is time to revise our priorities and look at new opportunities and new areas of concern.

Some things have not changed - the need to fund infrastructure in universities, and the impending shortage of qualified teachers of mathematics and science.

Other issues have emerged or gained greater emphasis, such as the difficulties young scientists have in establishing a career in research, the very real threats to the CRC program, and the need to work out the next generation of programs to support industrial R&D.

All Member Societies have been invited to suggest changes (direct to Ken Baldwin, at the ANU: Kenneth.Baldwin@anu.edu.au); and will be given an opportunity to discuss the draft policy at Council on November 20.

Members will have several opportunities to comment: when the new draft is posted on the FASTS' web before Council, and after Council when the modified draft will be available for comment.

5. PMSEC: The next PMSEC meeting has the tentative title of "Science, engineering and technology for employment". Obviously it will focus on the capacity of S&T to generate jobs.

FASTS suggestions have been incorporated in the program for the day, and I have also been invited to comment on the main document to be presented to the Prime Minister and his colleagues for discussion.

This meeting unfortunately will be closed to the public, so we will not be issuing our usual invitation to FASTS' Members to nominate people to attend.

Peter Cullen will by then have taken over as President, and will represent FASTS at the meeting.

6. INQUIRY INTO INSTITUTES OF TECHNICAL AND FURTHER EDUCATION: FASTS has been invited to make a submission to the House of Representatives Standing Committee on Employment, Education and Training on the appropriate roles of institutes of technical and further education; and the extent to which these roles should overlap with universities.

Jan Thomas is drafting our submission (JanThomas@VUT.edu.au), and any contributions would need to be sent to her almost immediately.

7. ANZAAS: The news that ANZAAS was moving to close down its operations was extremely disappointing but not altogether unexpected.

Their problems were well documented, but perhaps it is still possible to build a new coalition which involves other groups as well as ANZAAS to carry on their work of promoting science and communication among scientists.

The objectives of FASTS include promoting the public understanding of science, and enhancing and facilitating communication in the scientific community.

I believe that any proposals for a successor to the ANZAAS Congresses can only succeed if they are solidly supported by the broad science community. While FASTS has yet to take a formal position on the matter, we will be part of any such discussions.

8. ANZAAS MEDALLIST: Congratulations to former President of FASTS Graham Johnston, on being awarded the ANZAAS Medal for 1997 for his contributions to science, in particular to the development of science policy.

He is a member of ANZAAS, and has just set up a web site to promote informed discussion on its future. The site already contains press reports from Robyn Williams, Leigh Dayton and Graeme Leech, plus the ANZAAS accounts, a report of the AGM, and the ANZAAS constitution.

The URL of the site is: http://www.usyd.edu.au/su/pharmacology/anzaas

9. ADDITIONAL HEALTH RESEARCH FUNDS: Board Member David Tracey attended a meeting of the Australian Society for Medical Research (a FASTS' Member), at which the ASMR plans to lobby Government.for increased medical research funds were unveiled.

The ASMR has employed Protocol Management Group to manage their campaign to increase the health and medical research budget, and calculated they had 143 days to influence the next Budget round.

This is of course a pre-election Budget, when Governments tend to be most receptive. The FASTS' campaign will be built around the revised policy document, and the "Ten Top Policies" as identified by Council and the Board.

10. A ROCK FOR EACH OF US: This reminds us all to be conscious of the opportunity in the next two to three months to influence politicians on relevant budget issues. Please let me have your ideas on priority budget ideas prior to or at the Council Meeting on November 20.

NEW BOOKS

Managing Algal Blooms:
Outcomes from CSIRO's Blue-Green Algal Research Program

Edited by J.R. Davis

THIS LANDMARK BOOK brings together the results of CSIRO's Blue-Green Algal Program, a 3-year multidisciplinary research effort by teams of scientists across the country. From 1992 to 1995, researchers examined many different aspects of algal blooms and as a result came to a better understanding of what causes them. This book documents the main findings, setting them out in a way that water managers can readily understand and use.

Each chapter describes a distinct area of research and shows the relevance of that work to management. As with all science, some of the work can be applied immediately, while other investigations may take some years of further effort to come to fruition.

Highlights

- THIS BOOK will play a key role in changing people's preconceptions about algal blooms and will provide managers with practical advice and techniques.
- IT SHOWS that flow management can be a practical tool for managing blooms in impoundments on inland rivers.
- NUTRIENT MANAGEMENT (particularly of phosphorus) is a more limited tool than was previously believed.
- IN BOTH estuaries and rivers, there are significant periods when nitrogen is the nutrient controlling algal biomass.
- IT IS POSSIBLE to monitor water quality remotely with sufficient time resolution to detect changes in nutrients and algal biomass.
- SEDIMENTS PROVIDE a larger and more accessible source of nutrients than does runoff from catchments.

The book is available for $30 (+ $5 postage) from:

Finance Officer,
CSIRO Land and Water,]
PO Box 1666,
Canberra, ACT 2601.
Enquiries on (02) 6246 5804.

BOOK REVIEW

Diatoms from Tasmanian Mountain Lakes: a Reference Data-set (TASDIAT) for Environmental Reconstruction and a Systematic and Autecological Study - Vyverman, W., Vyverman, R., Hodgson, D. & Tyler, P. 1995. Cramer, Berlin. 193 pp; 42 plates.

and

Diatoms of Meromictic Lakes Adjacent to the Gordon River, and of the Gordon River Estuary in South-west Tasmania - Hodgson, D., Vyverman, W. & Tyler, P. 1997. 173 pp; 20 plates.

These two books contribute substantially to the limited body of knowledge of the diatom flora of Australia and continue the Cramer tradition of documenting the world's diatom floras. Vyverman *et al.* (1995) reports on diatoms from 76 lakes 50 km either side of the major geological discontinuity which runs diagonally through Tasmania. The study covers lakes at the foot of Cradle Mountain to those towards the southern limit of the state in the vicinity of Mt. La Perouse. The flora described in Hodgson *et al.* (1997) are based on both 24 modern samples, from the lower Gordon system and adjacent lakes of varying hydroseral state, as well as 44 fossil samples from a long (17 m) core from the meromictic Lake Fidler.

Both volumes provide illustrations of the contemporary statistical approaches used in the development and analysis of reference data sets for inferring past environments from fossil assemblages. They also provide enjoyable accounts of the environment, the environmental issues and the consequent push of research into the area - the Gordon lakes only being discovered during one of the many scientific expeditions into the region driven by the threat of hydro-electricity impoundments in the early 1980's.

As a bonus, Hodgson *et al.* (1997) provides a marvellous piece of applied, palaeolimnological detective work. It documents an important palaeolimnological record of the evolution of Lake Fidler from a brackish inlet at *ca.* 8000 years BP to an isolated backwater and finally, by *ca.* 2000 years ago, a stratified system reflected in the freshwater diatoms derived from the mixolimnion. A clear picture is painted of the unique limnological nature of the modern lakes sprinkled along the lower Gordon Rivers northern margin, (analogues of the former Lake Fidler) and their tenuous hold on that condition. The palaeo-Lake Fidler provides the ideal context for its modern state, demonstrating that its recent rate of stratification weakening is unprecedented and cause for concern. This evidence was sufficient to prompt the Gordon River Power Development to take measures to allow for the salt wedge to penetrate further up the system to gradually reinforce its meromictic state.

Certainly these volumes will be sought after mostly for their careful taxonomic treatment of a sample of Australia's diatom flora - for herein lies their major contribution. The species are described in alphabetical order; the descriptions providing numbers to the very clear and well arranged plates which, usefully, are in taxonomic order allowing for comparison with similar types.The iconographs of SEM and LM photos are well presented and the taxonomy is consistent with the main schema according to the most widely used texts.

However, there are some minor matters which are at odds with the very high quality of the plates and taxonomy. Both documents skirt around several issues which have a risen from the development of data sets elsewhere. The differential suitability of sediment samples or periphyton as the basis for the data sets or the timing of water sampling to best represent the diatom assemblage could have been discussed. Additionally, there are some strange omissions in both bibliographies overlooking published reference sets of taxa related to pH and salinity. Some comparison with the autecological observations of these studies with those documented here might have been useful. Such comparisons may have revealed inconsistencies such as the pH optimum of 5.79 for *Achnanthes delicatula*, a taxon considered typical of brackish, alkaline waters. One suspects that the establishment of an inference set based on samples from a narrow geographic range produces optima which do not necessarily reflect the species 'real' optimum. This may only be gained through the integration of a number of data sets over a wide geographic and chemical range. In that case these volumes ought to be seen as substantive building blocks to such a goal rather than the final product. Another issue worthy of discussion and sparked by these two volumes is that of endemism in Australian diatoms. A certain degree of endemism is overtly accepted here yet this is seemingly driven by evidence for endemism in Tasmania in other floristic groups rather than by any peculiar chemistry.

In addition, there are several errors which would have been overcome with more thorough technical editing eg. the text describes Figure 3 in Vyverman *et al.* (1995) as it might appear in reverse; Lake Morrison is 2m deep (not 5m). Furthermore, the recent changes to generic names are not preferred and not always offered as synonyms.

It must be stressed however, that these are minor matters and do not detract from what are undoubtedly substantial contributions to Australian diatom research. Their appeal ought not be limited though to the local scene, as they contribute to the knowledge of the world's acidobiontic taxa - perhaps providing references, as they claim, for those from all too rare pristine landscapes. The question as to the endemic nature of many of the forms presented here will gradually be resolved as more of the distinctive lake fields of the world are examined in such a diligent and passionate manner.

Peter A. Gell
Dept. Geography
University of Adelaide.

CONFERENCE REPORTS

Annual Conference of the New Zealand Limnological Society

I was honoured to be invited to give the Keynote Paper at the most recent Annual Conference of the New Zealand Limnological Society. The NZLS's meeting was held in sunny Nelson (on the tip of the North Island, nearish to the wonderful Sauvignon blanc country of the Marlborough Sound) from 30 June to 4 July, and the topic of my paper was *Carbon cycling in Australian wetlands: the importance of methane*. I also spent a while at NIWA (where Brian Sorrell, Alistair Suren and Clive Howard-Williams work) and the University of Canterbury (Mike Winterbourn) in Christchurch and at the University of Otago (Carolyn Burns, Colin Townsend, Gerry Closs and Marc Schallenberg) in Dunedin.

It was good to visit New Zealand again, as it had been over ten years since I was last there. That time was at the end of my PhD, when I had 3 months of scholarship remaining yet had finished my thesis. Not having a job to go to immediately and the times being rather more libertine than those we suffer under today, I gave the damn thesis to my supervisor, asked him to forward the few remaining scholarship cheques to me, and headed off to New Zealand with a pack, a tent and a fishing rod. A bit like *A River Somewhere*, only ten years before Rob Sitch's and Tom Gleisner's wonderful efforts. In 1984 you could hire motor bikes in Christchurch, so I took off with the said camping (sorry, tramping in Kiwispeak) gear and a tired old Yamaha 650 that seemed to use more oil than fuel, and toured around the limnological hotspots of New Zealand in search of trout and salmon.

The most obvious difference between the New Zealand of then and now is that you can now use the words cuisine and kiwi in the one breath without it being an oxymoron. The food in Christchurch, Nelson and Dunedin was wonderful. One could almost close one's eyes and be transported to Fitzroy St, St Kilda or any other trendy hotspot in Melbourne, surrounded by the aroma of cafe lattes and fresh bread and so on. However, once one left the big smoke it was back to 1950's white bread and plastic cheese and greasy lamb and ghastly instant coffee..... I guess it's the same in much of Australia, so the comparison is not exactly fair.

I suppose that I should fill you in on the conference itself. Well, let's continue the epicurean theme and discuss the most important aspect: the food. The organisers turned on the best conference dinner I had ever had. At many (most?) conferences, the dinners are an overpriced fiasco, and the only reason we attend them at all is to catch up with colleagues and drink an excess of red wine. The latter two reasons also sufficed at the Nelson conference, but the food was a revelation; fried camembert for entrees, smoked salmon and tender Bambi for mains, and delightful cholesterol-laden yummmies for desserts. The red wines demonstrated, yet again, that the kiwis can't get Cabernet sauvignon to ripen anywhere and that Merlot is a weak-kneed flabby variety

for those who can't grow real red grapes, but the whites were wonderful (especially those green and acid Sauvignon blancs, and those over-oaked, malolactic-fermented, kept-on-lees Chardonnays).

The conference talks were uniformly excellent. A few brave souls persevered with direct computer-driven Powerpoint presentations, and for once the technology didn't let them down. In fact, neither did the slide projector ever fail . But it was evident that the direct use of Powerpoint still fails to deliver the resolution that good old-fashioned analog technologies can provide, and very often the text on the diagrams was poorly resolved on the overhead screens. Just call me a luddite, I guess, but I'll stick with individual silver grains glued in a gelatine matrix on a polyester film, until the pixel size of computer-driven graphics can offer the same resolution. There were no concurrent sessions, so one could see all the talks, the only mitigating factor against this being mental overload. I must confess that at the end of the 3rd day, my neurone was too tired to continue and I expect a few other delegates suffered from similar complaints.

A few interesting comparisons could be made between the limnological scenes in Australia and New Zealand. First, the kiwi funding arrangements are different from those here, and this was apparent in there being a lot more "applied" issues discussed at the conference. Also, rather more of those groups directly involved in water management were present at the conference than we are used to at our ASL meetings. There seemed to be a greater emphasis on botanical studies, especially macrophyte and macroalgal studies, perhaps because aquatic weed growths are such a problem in New Zealand. Fish studies, of course, were very common. But there were fewer macroinvertebrate studies and, as usual, little on the really important critters: the microbes.

One last point to make: an additional outcome arising from my visit to New Zealand is that we will try to ensure closer relationships between the NZLS and the ASL. I had discussions with the Executive of the NZLS about our having joint conferences every four years, so that once every eight years the kiwis travel over here and every eight years we get the opportunity to buy duty-free Benedictine and perfumes for our partners by travelling to New Zealand. Of course, we could decide to have the inaugural conference in neutral territory, and the thought of a conference midway between the two countries - say Lord Howe Island - is rather attractive.

Paul I Boon

PAROO RIVER SCIENTIFIC WORKSHOP

Background

The Paroo River system begins in southwestern Queensland and flows south to New South Wales (see map). It usually ends in some large overflow lakes north of the town of Wilcannia. It extremely large floods the river will reach the Darling. It has complex flow patterns as it moves down a series of channels into swamps and lakes. Cuttaburra Creek that leaves the Warrego River, further to the east, is also a critical part of this river system as it joins the Paroo River. The river is essentially unmodified by humans. Its flow patterns are not affected by dams, weirs or major diversions of water, unlike every other major river system in the Murray-Darling Basin. In contrast to other rivers in the Murray-Darling Basin, the river still retains many of its environmental values. It also suffers few of the ecological problems that have been identified on other river systems in the Murray-Darling Basin. Its flooding also provides the livelihood for many graziers who rely on the growth of wetland plants that comes with the floods.

n 1995, the first irrigation applications for the Paroo River were submitted to the Queensland Government. The Queensland Government, in its submission to the Independent Audit on implementation of the Murray-Darling Basin Cap, considered there was still considerable scope for development of water resources by irrigation in Queensland. As is usual with such irrigation applications, their submission necessitated placement of an advertisement for objections in the local newspaper. Only landholders who live either eight kilometres upstream or twenty-four kilometres downstream can object. The Queensland Department of Natural Resources, in recognition of the difficulties of such a narrow definition, have begun a planning process to produce a Flow Management Plan for the Paroo River. This process involves local community and an assessment of likely impacts of diverting water from the river.

The Paroo River Association was formed in March 1996 in recognition of four issues:

- the serious impact that diversions have on river systems;
- likely impact on the livelihoods of graziers;
- momentum for development in Queensland and;
- the environmental values of the Paroo River.

The members were concerned property owners, managers and local community members who make their living in the Paroo River catchment. They came from the community in New South Wales and Queensland as a reflection of the importance of the catchment and not the state border.

The Paroo River Association in collaboration with NSW National Parks and Wildlife Service coordinated a scientific workshop to discuss long implications of irrigation on the Paroo River. The workshop had three main aims: (1) to present the community with knowledge about the scientific understanding of the Paroo River; (2) to bring knowledge about the damage to other river systems in the Murray-Darling Basin where major diversions of water have occurred and; (3) to provide a forum for effective communication between the local community, scientists and resource

managers. Nearly 100 people attended the scientific workshop in the border town of Hungerford on 7-9/7/97. Scientists came from all around Australia and the workshop was well attended by resource managers from New South Wales and Queensland. The people of the Paroo River were an integral part of the workshop, providing the local perspective.

There were a series of formal papers presented by the scientists and local people. Managers talked about their role and the processes which are to be followed to determine outcomes. The workshop ended with the development of a series of formal recommendations from the Paroo River Association and the scientists based on the information presented at the workshop. These are given in the following pages as well as the abstracts of the papers presented at the workshop. The full text of the papers will be presented in a monograph of refereed papers which will be published in March 1998. The workshop was supported with a grant from the Wetlands Action Plan (NSW Department of Land and Water Conservation)

Recommendations from the Paroo River Scientific Workshop

The participants at the Scientific Workshop at Hungerford (7-9/7/97) endorsed the recommendations of the Paroo River Association (landholders) and the scientists.

Paroo River Association Recommendations (landholders)

The members of the Paroo River Association call on the Queensland, New South Wales and Federal Governments to:

1. Reject any applications for regular extraction or diversion of water for commercial irrigation purposes along the entire Paroo River system.
2. Clarify the processes by which the Border Rivers Commission determines policies on the Paroo River. The Border Rivers Commission must recognise the rights of landholders and the impacts of any irrigation on their livelihoods.
3. Provide funding through their agencies for a major study into the oral history of the Paroo River and its people to establish a benchmark for further studies into this river system
4. Include the entire Paroo River system with disregard to state boundaries or political bias in any studies or management plans.
5. Consult and include the Paroo River Association in any further developments or considerations which will affect the future of the Paroo River

In addition to these recommendations The Paroo River Association will liaise with other concerned and affected landholders whose livelihoods have or could be affected by reduced flooding on other river systems in Australia with the view to forming a

national body which will have more of a say on the management plans for Australian river systems.

Scientific recommendations

The Paroo/ Cuttaburra River system is the last major river system in the Murray-Darling Basin with an unmodified flow regime. Its complex network of interconnecting channels, swamps and -overflow- lakes make it unique internationally. The river and its wetlands, which may cover more than one million hectares during floods, support unique plant species (e.g. Yapunyah), many invertebrate species, frogs, reptiles, fish, waterbirds and the native water rat. Native fish populations are genetically distinct, within the Murray-Darling Basin and despite the presence of carp, are in healthy numbers in contrast to modified rivers. Waterbirds occur in numbers which rival wetlands in Kakadu. The Currawinya Lakes, listed as a wetland of international importance, can support more than 250,000 waterbirds of many different species. The rare freckled duck sometimes numbers more than 10,000 on the lakes, making them the most import refuge for freckled duck in Australia. As well, migratory wading birds which travel to and from the Northern Hemisphere sometimes occur in numbers of more than 10,000.

An unmodified flow regime with all its variability, from floods to droughts, is the most important factor determining the rich assemblage of life on this river. In addition there are compelling social and economic reasons for not modifying flow with diversions.

Evidence for the impact of water abstractions on the rivers and wetlands they support is unequivocal. Internationally, wetlands such as the Aral Sea, Mono Lake, and Florida Everglades and, in Australia, Macquarie Marshes, Gwydir wetlands, Barmah-Millewa Forest show considerable ecological damage caused by river regulation and diversion. Diversions can be unnaturally caused by altering the flow of the river with levee banks or even roads. There are also other associated impacts: invasions of weeds, increasing carp populations and pesticide infiltration into the river system. The ecological values of the Paroo/Cuttaburra River system will be diminished with any alteration of flow regime caused by abstractions and/or diversions.

Recommendations

Based on the information above, the scientists attending the Paroo Scientific Workshop call on the Governments of Queensland, New South Wales and Federal Government to

1. Reject any applications for intensive agriculture, including irrigation, or other projects which could abstract and/ or divert water from the Paroo/Cuttaburra River system.
2. Protect the Paroo/ Cuttaburra catchment irrespective of state borders through an interstate partnership

3. Recognise and protect important ecological, scientific, social and economic values which rely on flows in the Paroo/Cuttaburra river system
4. Recognise that the Paroo/ Cuttaburra River system is the last river system in the Murray-Darling which could be used as a reference point for scientific and cultural studies to improve understanding and management
5. Recognise the international (Ramsar, CAMBA, JAMBA) national (National Estate, COAG; ANZECC Principles), state (National Parks and Nature Reserves, policies) obligations for sustainable management of the Paroo/Cuttaburra river system and its wetlands.

Scientists

Dr Andrew Boulton, Department of Zoology, University of New England, Armidale
Dr Margaret Brock, Department of Botany, University of New England, Armidale
Dr Stuart Bunn, Faculty of Environmental Sciences, Griffith University, Brisbane
Dr Michelle Casanova, Department of Botany, University of New England, Armidale
Dr Martin Denny, Mount King Ecological Surveys, Oberon
Dr Peter Fairweather, CSIRO Land and Water, Griffith
Dr Richard Kingsford, NSW National Parks and Wildlife Service, Sydney
Mark Morrison, School of Economics and Management, The University of NSW, Canberra
Dr John Pickard, Graduate School of the Environment, Macquarie University, Sydney
Jim Puckeridge, Department of Zoology, University of Adelaide, Adelaide
Dr Jane Roberts, CSIRO Land and Water, Griffith
Dr Craig Schiller, NSW Fisheries, Narrandera
Professor Brian Timms, Department of Geography, University of Newcastle, Newcastle
Dr Robyn Watts, School of Science and Technology, Charles Sturt University, Wagga Wagga
Dr Bill Young, CSIRO Land and Water, Canberra

Richard Kingsford

WETLANDS IN A DRY LAND: UNDERSTANDING FOR MANAGEMENT

This worksjhop was held in the Convention Centre and Charles Sturt University, Albury on the 29th and 30th September 1997. There were over 100 participants including members of the farming community, scientists and wetland managers. The workshop was opened by Senator Ian McDonald.

The aims of the workshop were:

i. to enable communities to be informed about and participate in the National Wetlands R & D Program
ii. to contribute information to the development of a National Wetlands R & D strategy
iii. to provide an opportunity to commence an iterative dialogue with those interested and involved in the management of wetlands

There were considerable opportunities during and after the workshop for development of informal communications and exchange of information. A large number of issues were raised and canvassed. Enthusiasm, networking and informality characterised the nature of the workshop.

Bill Williams

SISORS III AND RIVER FLOWS
USA August-September 1997

The main reason for this trip was to attend the Seventh International Symposium on Regulated Streams (SISORS III) in Chattanooga Tennessee. [The designation III serves to distinguish the seventh symposium in this series from the second and sixth, which had the same abbreviated name]. It was a rather small affair, as international symposia go, attended by delegates from 15 countries. Contingents from Norway and the UK were particularly strong.

The theme of the symposium was Managing Rivers for Biodiversity, with sessions focussing on Terrestrial-Aquatic Interactions, Ecological Responses to Stream Regulation, Methodologies and Approaches for Determining Ecological Flows, Physiochemical Responses to Stream Regulation, Assessing, Managing and Monitoring Rivers, Restoration of Tailwater Habitats, River Rehabilitation: Science and Management, and Case Histories, and Backwater Habitats and Secondary Channels. Other sessions covered special interest topics such as Atlantic Salmon in the River Alta (Norway), Restoration in the Upper Tennessee River, and a Case History of the River Suldalsl(gen (Norway). I gave my paper on the first day, discussing differences in fish assemblages between regulated and unregulated rivers in the Hawkesbury-Nepean River system.

The early sessions provided some theoretical perspectives that would be difficult or impossible to test. Studies on endangered fish species and experimental flooding in the Colorado River were interesting with regard to the compromises that need to be made in getting sufficient water to create a flood. Another area of interest was how to set ecological targets for river restoration to establish testable hypotheses, and how to demonstrate whether the desired results have been obtained. The last two days saw some more challenging prospects emerge, with a realisation that understanding of the ecology of regulated rivers is much more advanced now than it was twenty years ago. There are now an increasing number of opportunities for rehabilitation or restoration of river ecosystems that have been effected by altered flow regimes.

I got the impression that within the CRC for Freshwater Ecology, and with the NSW Government's Water Reform Package, we are relatively advanced, compared to other countries, in our approaches to understanding and restoring regulated rivers. Other countries represented retain an out-dated single-species focus, commonly directed at salmonids. We also appear to have a much stronger emphasis on biotic communities as functional entities in managing river ecosystems, rather than developing management strategies based on the requirements of single species. Disappointingly, no particularly innovative methods or new conceptual approaches were presented that have short-term or intermediate-term application potential in Australia. It is encouraging to think that Australia is one of the leading countries in this field, but the remaining knowledge gaps indicate there is still much work to be done. It is to be hoped that the effort being invested through the CRC and NSW Government, to understand and restore regulated

rivers, can be used to advantage in Queensland so that the current push to develop water resources in that State avoids the earlier mistakes in NSW and Victoria.

From Chattanooga, I travelled to Fort Collins in Colorado for a workshop on developing measures of flow regulation, with specialists from The Nature Conservancy, Colorado State University and the US Geological Survey Biological Services Division. Such measures are a fundamental part of establishing enhanced flows and to measuring the ecological benefits of environmental flows. A suite of software tools is now available commercially for interpreting hydrological data in ecologically meaningful terms. The package is likely to be immensely valuable for flow studies in NSW and elsewhere in Australia. Development of these and related tools is a potential area for collaboration CRC staff and US workers.

At Colorado State University I had informal discussions with staff from the Department of Fisheries and Wildlife Biology, touching on areas of fish taxonomy and evolution, warmwater fish ecology, larval fish taxonomy and ecology, electrofishing methods and application of the Index of Biotic Integrity. I gave a seminar on major issues in conservation and management of fish and rivers in NSW, drawing comparisons with arid and semi-arid regions in the US interior. The audience was particularly interested in events, such as algal blooms and the spread of carp, which have brought the plight of rivers, and the need to protect them, to the attention of the community and different levels of government in Australia.

I was overwhelmed by the hospitality extended to me by all the people I met, and by their interest in drawing comparisons between the Murray-Darling and Colorado river systems. Despite SISORS III not meeting all my expectations, the discussions and contacts made during the second leg of the trip were extremely valuable and will greatly enhance the ability of the CRC and NSW Fisheries to improve understanding of the ecology of regulated rivers, and to implement the NSW Government's Water Reform Package.

Peter Gehrke

CONFERENCE CAPERS

AUSTRALIA 1997

- **2nd International Symposium on Ecology and Engineering (ISEE)** "Enginering the Aquatic Environment" 10-12 November 1997. Venue: Fremantle, Western Australia. Jointly organised by the Centre for Water Research at The University of WA and the Coastal and Offshore Engineering Institute, Universiti Teknologi Malaysia. The focus will be on methods for the preservation, maintenance and rehabilitation of aquatic systems in the broadest sense. The organisers hope to bring together geomorphologists, chemists, biologists and engineers to find solutions through field investigations, laboratory experimentation and numerical modelling. The focus will be on process rather than socio-economic managment. Inquiries: Professor Jorg Imberger and Vicki Sly. Tel: 09-380-3911, Fax: 09-380-7115 Email: sly@cwr.uwa.edu.au; http://www.cwr.uwa.edu.au/javindex.html

- **Environmental Sampling and Analysis: Latest and Future Developments**, 18 November, Canberra. the CRCFE and AMDEL are cohosting this halfday workshop to be presented by Dr Lawrence Keith. Enquiries: Bill Maher, University of Canberra, email: maher@science.canberra.edu.au

- **The Other 99%, the Third Conservation and Biodiversity of Invertebrates,** 9-12 December 1997, Australian Museum, Sydney, NSW. The topics of symposia are: Assessing the Other 99 %, Describing the Other 99%, Invertebrate Conservation through Legislation and Policy The Invertebrate Agenda. Calls for Abstracts and Posters are now out. To receive additional information on the meeting, including the format and closing date for abstracts, please send an email to: invert@amsg.austmus.gov.au. Postal address: Invertebrate Biodiversity Conference, Australian Museum, 6 College St, Sydney NSW 2000. Ph: 02-9320 6224; Fax: 02 9320 6050

OVERSEAS 1997

- **Chaotic Dynamics of Planktonic Food Webs**, 8-10 October, 1997, Rostock-Warnemünde, Germany. Further information and registration from: International Conference PD Dr Reinnard Heerkloss, Universitat Rostock, Institut für Ökologie, Freiligrathstraße 7/8, D-18051 Rostock, Germany. Ph: +49-381-498-2015, Fax: +49-381-498-2011. Email: rh@frserv.bio3.uni-rostock.de

AUSTRALIA 1998

- **15th International Diatom Symposium**, 28 September - 2 October 1998, Curtain University, Perth WA. Pre-registration by 30th October 1997. Information from Jacob John, School of Environmental Biology, Cutain University of Technology. GPO Box U 1987, Perth WA 6845. Ph: (08) 9266 7327; Fax: (08) 9266 2495; Email: RJACOBJO@cc.curtain.edu.au. or visit the home page on http://www.curtain.edu.au/curtain/dept/enviro/15IDS.html

- **Ecology Society of Australia** - joint meeting with New Zealand Ecology Society - see in Overseas section

- **Australian Society for Limnology**, tentative July, Queensland

OVERSEAS 1998

- **International Interdisciplinary Conference Headwater Control IV: Hydrology, Water Resources and Ecology in Headwaters,** 20-23 April 1998, Meran/Merano, northern Italy (The Alps). This conference will focus on the interdisciplinary aspects of scientific and applied water resource management in headwaters. It will aim to link the perspectives of the research scientists (hydrologists, ecologists, etc.), land-management practitioners and policy makers through consideration of the problems caused by pollution, land erosion, and environmental degradation. The conference will provide an international forum for the evaluation of alternative land management, environmental protection and land reclamation practices and policies. The conference is intended as a balanced mix of scientific approaches and practical applications. Both oral and poster presentations are planned. For more information contact: HeadWater'98, > c/o European Academy, Weggensteinstrasse 12/A, I-39100 Bozen/Bolzano, Italy. Ph: +39 - 471 - 30 61 11; Fax: +39 - 471 - 30 60 99; Email: HeadWater98@ms.sinfo.interbusiness.it; or visit the Home Page http://www.EURAC.edu/headwater

- **Watershed Management: Moving From Theory to Implementation**, May 3-6, 1998, Denver, Colorado, USA. For further information on Abstracts and the Conference contact: Greg McNelly (Email: gmcnelly@wef.org) or Technical Programs - Abstracts, Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314, Phone: +1-703-684-2400

- **NABS 46th Annual Meeting**, 2-5 June 1998, Prince Edward Island, Canada. Abstract deadline 4th January 1998. Information can be obtained from: http://www.benthos.org

- **ASLO/ESA 1998 - The Land-Water Interface: Science for a Sustainable Biosphere**, 7-12 June 1998, St Louis, Missouri USA. Further information contact: Business@aslo.org

- **VII International Congress of Ecology**, 19-25 July, Florence Italy. Contact details: Phone: +39-187-400252, Fax: +39-187-420727, Email: afarina@tamnet.it or visit the web site: http://www.tamnet.it/intecol.98

- **27th International Association of Theoretical and Applied Limnology (SIL),** 9-15 August 1998, Dublin, Ireland. Theme for the congress is "water of life". Further information from: Declan Murray, Secretary General, XXVII SIL Congress, UCD Environmental Institute, Richview, Clonskeagh, DUBLIN 14, IRELAND. Information can also be found at the web site: http://nis.rtc-tallaght.ie/conferences/sil98/sil98.htm

- **International Conferences on Ephemeroptera and Plecoptera,** 17-23 August 1998, Tafi del Valle, Argentina. Email: mayfly@unt.edu.ar

- **Ecology Society of Australia** and **New Zealand Ecology Society** joint meeting, 23-27 November 1998, Dunedin New Zealand,

FURTHER IN THE FUTURE....

- **28th International Association of Theoretical and Applied Limnology (SIL),** February 2001, Melbourne, Australia.

- **29th International Association of Theoretical and Applied Limnology (SIL),** August 2004, Helsinki, Finland.

ASL VOLUNTEERS

The following people have volunteered to speak as experts on behalf of the ASL. If you wish to be included on the list contact:

Dr Richard Marchant (ASL Secretary)
Email: rmarch@pioneer.mov.vic.gov.au

The following members are prepared to speak on behalf of the ASL on their area of expertise.

Name	Area of Expertise	Contact Details
Prof A. Arthington	in stream flows, ecology of exotic fishes, conservation of rare fishes.	Centre for Catchment & Instream Res, Griffith University, Natham Qld. 4111. Phone (07)275 7403 , Fax: (07)277 3759
Dr P. Boon	bacteriological issues, wetlands.	Environmental Management, Victoria University of Tech., PO Box 14428 MMC, Vic. 3000. Phone (03)9365 2214, Fax (03) 9365 2465. email:boopa@stamail1.vut.edu.au
Dr A. Boulton	intermittent streams, hyporheic zones, Flinders Ranges	Ecosystem Management, University of New England, Armidale, NSW 2351. Phone (067)733760, Fax (067)732 769 email: aboulton@metz.une.edu.au
Dr M. Brock	temporary wetlands, aquatic plants	Botany Department, University of New England, Armidale NSW 2351. Phone (067)732 578, Fax (067)733 283 email: mbrock@metz.une.edu.au
Dr S. Bunn	stream ecology, ecology of riparian zones, biomonitoring	Faculty of Environmental Sciences, Griffith University, Nathan, Qld 4111. Phone (07)8757 407, Fax (07)875 7459, email: s.bunn@ens.gu.edu.au
Dr T. Entwisle	taxonomy and ecology of freshwater macroalgae	National Herbarium of Victoria, Birdwood Ave, South Yarra, Vic. 3141. Phone (03)96552313, Fax (03)9655 2350 email: Entwisle@botany.unimelb.edu.au
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Dr T. Grant	platypus biology	Biological Science, University of NSW, PO Box 502, Cronulla, NSW 2230
K. Hortle	impact of mining, impact of development in Se Asia and PNG on rivers	Environmental Management, 18 Sharrow Road, Mitcham, Vic. 3132 Phone and Fax: (03) 9872 4101

Dr P. Horwitz	conservation of freshwater invertebrates	Dept of Science, Edith Cowan University, Joondalup Drive, Joondalup, WA 6027. Phone (08) 94055717, Fax: (08) 9300 1257 email: phorwitz@cowan.edu.au
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Dr G. Jones	cyanobacterial blooms	Phone: 07-3896 9516, Fax: 07-3896 9525 email:gary.jones@dnr.qld.gov.au
Dr P.S. Lake	stream ecology, conservation freshwater biota	Ecology & Evolutionary Biology, Monash University, Wellington Road, Clayton, Vic. 3168. Phone (03)9055 653, Fax:(03)9055613 email: p.s.lake@sci.monash.edu.au
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Dr R. Pearson	tropical freshwater ecology	Zoology Dept. ACTFR, James Cook, University, Townsville, Qld. 4811. Phone:(077) 814 262, Fax: (077)79 6371
Dr W. Ponder	freshwater molluscs	Malacology, Australian Museum, 6 College Street, SYDNEY 2000 Ph: (02) 9320 6120 Fax (02) 9320 6050 Email: winstonp@amsg.austmus.gov.au
J. Puckridge	ecology of arid zone rivers, ecology of freshwater fish	CRCFE, Zoology Department, University of Adelaide, Adelaide, SA 5005. Phone (08) 83034455. Fax: (08) 8303 4364 email: jpuckrid@zoology.adelaide.edu.au
Dr N. Rea	wetland plant ecology, water regime, weeds and conservation	CSIRO Entomology, TERC, PMB44, Winellie, Darwin NT 0821 Phone (08) 8922 1717, Fax: (08) 8922 1714, email: naomi@terc.csiro.au
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Prof. W.D. Williams	Salt lakes	Zoology Dept, University Adelaide, Adelaide SA 5005. Phone (08) 8303 4455, Fax: (08) 83034364

BIBLIOGRAPHY

Please send details or copies of books, chapters, articles, periodicals, monographs, reports, newsletters, videos and CD's to Russ Shiel, MDRFC, PO Box 921, Albury, NSW 2640. Go on, do it..... see your name in print.....

WILSON, G.D.F. & PONDER, W.F. 1992. Extraordinary new subterranean isopods (Pericarida: Crustacea) from the Kimberley Region, Western Australia. Records of the Australian Museum, 44:279-298.

PONDER, W.F., CLARK, G.A., MILLER, A. & TOLUZZI, A. 1993. On a major radiation of freshwater snails in Tasmania and eastern Victoria - a preliminary overview of the Beddomeia group (Mollusca: Gastropoda: Hydrobiidae). Invertebrate Taxonomy, 7: 501-750.

PONDER, W.F., CHILCOTT, S.J., FULTON, W., KIRKPATRICK, J. & RICHARDSON, A.M.M. 1994. Streams and rivers in the World Heritage area of South Western Tasmania. Pp. 114-122. In Smith, S. J. & Banks, M. R. (eds), `Tasmanian wilderness - World Heritage values'. (Royal Society of Tasmania: Hobart).

COLGAN, D.J. & PONDER, W.F. 1994. The evolutionary consequences of restrictions in gene flow: examples from hydrobiid snails. Nautilus Supplement, 2: 25-43.

PONDER, W.F., D.J. COLGAN, G. A. CLARK, A. C. MILLER & T. TERZIS, 1994. Microgeographic genetic and morphological differentiation of freshwater snails - the Hydrobiidae of Wilsons Promontory, Victoria, south eastern Australia. Australian Journal of Zoology, 42: 557-678.

PONDER, W.F. 1994. Australian freshwater Mollusca: Conservation priorities and indicator species. Records Queensland Museum, 36: 191-196.

PONDER, W.F. 1995. . Mound spring snails of the Australian Great Artesian Basin. In Kay, E.A. (ed.) The conservation biology of molluscs. IUCN, Gland Switzerland. Pp. 13-18.

PONDER, W.F. 1995. The conservation of non-marine molluscs in perspective. Biodiversity and conservation of the Mollusca. Backhuys Publishers, Oegstgeest-Leiden. Pp. 55-67.

PONDER, W.F., EGGLER, P. & COLGAN, D.J. 1995. Genetic differentiation of aquatic snails (Gastropoda: Hydrobiidae) in artesian springs in arid Australia. Biological Journal of the Linnean Society, 56: 553-596.

PONDER, W.F., COLGAN, D.J., TERZIS, T., CLARK, S.A., & MILLER, A.C. 1996. Three new morphologically and genetically determined species of hydrobiid

gastropods from Dalhousie Springs, northern South Australia, with the description of a new genus. Molluscan Research, 17:49-109.

PONDER, W.F. 1997. Freshwater molluscs of northeast Tasmania. Records of the Queen Victoria Museum and Art Gallery, 103:185-191.

PONDER, W.F. 1997. Conservation status, threats and habitat requirements of Australian terrestrial and freshwater Mollusca. Memoirs of the Museum of Victoria, 56(2): 421-430.

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